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PS Form 3800, April 2002 — See Reverse for Instructions

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Mr. John P. Bohenko
City Manager
City Hall
1 Junkins Avenue
Portsmouth, MA 03801

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
1 CONGRESS STREET, SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023

CERTFIED MAIL – RETURN RECEIPT REQUESTED

AUG 01 2007

Mr. John P. Bohenko
City Manager
City Hall
1 Junkins Avenue
Portsmouth, MA 03801

Re: NPDES Permit No. NH0100234
Administrative Order Docket No. 07-016

Dear Mr. Bohenko:

Enclosed is an Administrative Order (the "Order") issued to the City of Portsmouth ("City" or "Portsmouth") for violations of NPDES Permit No. NH0100234 which was issued to the City on April 10, 2007 ("2007 Permit"). The 2007 Permit authorizes the City to discharge treated wastewater from Outfall No. 001 that meets secondary treatment-based standards, and requires wet-weather discharges from the City's four combined sewer overflow ("CSO") outfalls to receive a level of treatment necessary to achieve compliance with water quality standards.

The Order cites the City for discharges from the City's chemically-enhanced primary wastewater treatment plant that exceed the five-day biochemical oxygen demand, total suspended solids, and acute whole effluent toxicity ("WET") limits contained in its reissued NPDES Permit. Additionally, the Order finds that the City does not record residual chlorine on a continuous recorder as required by its NPDES Permit, and that untreated combined sewage discharges from its CSO outfalls contain bacteria concentrations that cause or contribute to violations of state water quality standards.

The Order requires the City to submit a.Technical Memorandum summarizing the results of Tasks 1 and 2 evaluations contained in the draft Wastewater Management Plan Scope of Work submitted to EPA in May, 2007, and an engineering report evaluating the causes of the WET limits violations that recommends the corrective measures required to prevent future WET violations. Also, the Order contains interim effluent limitations and monitoring requirements for Outfall No. 001, and an implementation schedule for the CSO abatement projects recommended by the April 2005 *Final CSO Long Term Control Plan*. Violation of the Order may subject the City to further enforcement under Section 309 of the Clean Water Act, in which injunctive relief and penalties may be

sought. Please contact Joy Hilton of my staff regarding any questions that you may have regarding the terms and conditions of the Order. She can be reached at (617) 918-1877.

Sincerely,

Susan Studlien

Susan Studlien, Director
Office of Environmental Stewardship

Enclosure

cc: Stergios Spanos, NHDES
Margaret Bastien, NHDES
Michael Wagner, EPA
Norma Mason, EPA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I

IN THE MATTER OF Portsmouth, New Hampshire NPDES Permit No. NH0100234	)	DOCKET NO. 07-016 FINDINGS OF VIOLATION AND
Proceedings under Section 309(a)(3) of the Clean Water Act, as amended, 33 U.S.C. §1319(a)(3)	)	ORDER FOR COMPLIANCE

I. STATUTORY AUTHORITY

The following Findings are made and ORDER issued pursuant to Section 309(a)(3) of the Clean Water Act, as amended (the "Act"), 33 U.S.C. §1319(a)(3), which grants to the Administrator of the U.S. Environmental Protection Agency ("EPA") the authority to issue orders requiring persons to comply with Sections 301, 302, 306, 307, 308, 318 and 405 of the Act and any permit condition or limitation implementing any of such sections in a National Pollutant Discharge Elimination System ("NPDES") permit issued under Section 402 of the Act, 33 U.S.C. §1342. This authority has been delegated to EPA Region I's Regional Administrator, and in turn to the Director of the Office of Environmental Stewardship (the "Director").

The Order herein is based on findings of violations of Section 301 of the Act, 33 U.S.C. §1311, and the conditions of NPDES Permit No. NH0100234. Pursuant to Section 309(a)(5)(A) of the Act, 33 U.S.C. §1319(a)(5)(A), the Order provides a schedule for compliance which the Director has determined to be reasonable.

II. FINDINGS

The Director makes the following findings of fact:

1. The City of Portsmouth, New Hampshire (the "Permittee" or "City") is a municipality, as defined in Section 502(4) of the Act, 33 U.S.C. §1362(4).

2. The City is a person under Section 502(5) of the Act, 33 U.S.C §1362(5). The City is the owner and operator of a Publicly-Owned Treatment Works, which includes a wastewater treatment facility (the "WWTF") and four combined sewer overflow (CSO") outfalls from which pollutants, as defined in Section 502(6) and (12) of the Act, 33 U.S.C. §§1362(6) and (12), are discharged from a point source, as defined in Section 502(14) of the Act, 33 U.S.C. § 1362(14), to the Piscataqua River and South Mill Pond. The WWTF is a 4.8 million gallons per day ("MGD") chemically-enhanced primary wastewater treatment facility that discharges an average daily flow of approximately 3.5 MGD of treated wastewater to the Piscataqua River during dry weather. South Mill Pond flows into the Piscataqua River which flows into the Atlantic Ocean. All three waterways are Class B waterways and waters of the United States as defined in 40 C.F.R. §122.2 and, therefore, are navigable waters under Section 502(7) of the Act, 33 U.S.C. §1362(7).

3. Section 301(a) of the Act, 33 U.S.C. §1311(a), makes unlawful the discharge of pollutants to waters of the United States except in compliance with, among other things, the terms and conditions of an NPDES Permit issued pursuant to Section 402 of the Act, 33 U.S.C. §1342.

4. On April 10, 2007, the City was reissued NPDES Permit No. NH0100234 ("NPDES Permit") by the Director of the Office of Ecosystem Protection of EPA, Region I, under the authority of Section 402 of the Clean Water Act, 33 U.S.C. §1342. The effective date of the NPDES Permit is August 1, 2007. It will expire on July 31, 2012. The NPDES Permit supersedes the NPDES permit issued on January 18, 1985.

5. The NPDES Permit authorizes the City to discharge pollutants from a point source (Outfall No. 001) at the WWTF to the Piscataqua River and from four CSO outfalls (Outfall No. 010A, Outfall No. 010B, Outfall No. 012 and Outfall No. 013) to South Mill Pond and the Piscataqua River, subject to the effluent limitations, monitoring requirements and other conditions specified in the NPDES Permit.

6. Section I.A.1. of the NPDES Permit includes secondary treatment-based effluent limitations for discharges from Outfall No. 001. The limited parameters include five-day biochemical oxygen demand ("BOD_5") and total suspended solids ("TSS"), water quality criteria-based limits for total residual chlorine, and water-quality-standards-based limits for pH and fecal coliform bacteria. The NPDES Permit also includes an acute whole effluent toxicity ("WET") limitation and monitoring requirements.

7. The Permittee's discharge of BOD_5, TSS, and acute WET to the Piscataqua River exceed the BOD_5, TSS, and acute WET limits in the NPDES Permit.

8. Section I.F.3. of the NPDES Permit requires that residual chlorine levels prior to dechlorination be reported using a continuous recorder.

9. The Permittee does not record residual chlorine with a continuous recorder.

10. Section I.C.1.a.(1) of the NPDES Permit requires that CSO discharges receive a level of treatment necessary to achieve compliance with water quality standards.

11. The Permittee discharges untreated combined sewage that contains bacteria at concentrations that cause or contribute to the exceedance state water quality standards in the receiving waters.

12. Section 301(a) of the Act, 33 U.S.C. §1311(a), makes unlawful the discharge of pollutants to waters of the United States except in compliance with, among other things, the terms and conditions of an NPDES permit issued pursuant to Section 402 of the Act, 33 U.S.C. §1342.

13. The Permittee's discharge of wastewater from Outfall No. 001 to the Piscataqua River in excess of the limits contained in the NPDES Permit, the failure to install and maintain a residual chlorine recorder prior to dechlorination, and the discharges of wastewater with bacteria from Outfalls 010A, 010B, 012 and 013 which caused levels of bacteria in the receiving water to exceed the State Water Quality Standards occurred in violation of the NPDES Permit and Section 301(a) of the Act, 33 U.S.C. § 1311(a).

III. ORDER

Accordingly, it is hereby ordered that the Permittee shall:

1. Wastewater Facilities Study of both CSO and Secondary Treatment Options: **By October 19, 2007,** prepare and submit to EPA and the New Hampshire Department of Environmental Services ("NHDES") a Technical Memorandum

summarizing the results of the City's Tasks 1 and 2 evaluations itemized in draft Wastewater Management Plan Scope of Work submitted to EPA on May 23, 2007.

2. Interim Effluent Limitations:

   a. The City shall comply with the interim effluent limitations and monitoring requirements for Outfall No. 001 contained in **Attachment A** of this Order.

   b. The Permittee shall also comply with all effluent limitations, monitoring requirements and other conditions specified in the NPDES Permit for the parameters not covered in **Attachment A**. It is the Permittee's obligation to operate the treatment facilities in a manner so as to maximize removal efficiencies and effluent quality.

3. Whole Effluent Toxicity:

   Within 90 days of receipt of this Order, submit to EPA and the NH DES a detailed engineering report that: (1) evaluates the specific causes of violations of the acute whole effluent toxicity limitation contained in the NPDES Permit; and (2) recommends corrective measures to eliminate these violations.

4. Combined Sewer Overflow Abatement Projects:

The City shall implement CSO abatement projects defined in its April 2005 *Final CSO Long Term Control Plan* in accordance with the following schedule:

Planning Area I.D.	Contract I.D.	Project Start Date	Project Completion Date
Lincoln	2	4/1/2007	7/1/2009
Lincoln	2A	7/1/2008	11/1/2010
Lincoln	3	4/1/2009	7/1/2011
Lincoln	3A	4/1/2010	7/1/2012
Borthwick	Interceptor	Under Design	1/1/2010
Court	Court #2	Under Construction	1/1/2009
Court/State	Court #3	1/1/2008	1/1/2012
Islington	Islington #1	Under Design	7/1/2009
Islington	Islington #2	7/1/2009	1/1/2012
Deer Street PS		Under Construction	7/1/2007
Mechanic Street PS		1/1/2009	4/1/2010
Revisit 2005 LTCP Flow Monitoring		1/1/2008	7/1/2008

5. Quarterly Progress and Work Projection Reports:

Beginning with the calendar quarter ending September 2007, submit quarterly reports on the City's progress in implementing the provisions of this Order. The reports shall be submitted by the last day of the month following the calendar quarter monitoring period. At a minimum, these progress reports shall include a description of: (1) activities undertaken during the reporting period directed at achieving compliance with this Order; (2) a summary of the status of all plans, reports, and other deliverables required by this Order that the City completed and submitted during the reporting period; and (3) expected activities to be completed during the next reporting period in order to achieve compliance with this Order.

IV. NOTIFICATION PROCEDURES

1. Where this Order requires a specific action to be performed within a certain time frame, the Permittee shall submit a written notice of compliance or noncompliance with each deadline. Notification must be mailed within fourteen (14) days after each required deadline. The timely submission of a required report shall satisfy the requirement that a notice of compliance be submitted.

2. If noncompliance is reported, notification should include the following information:

   a. A description of the noncompliance;

   b. A description of any actions taken or proposed by the Permittee to comply with the lapsed schedule requirements;

   c. A description of any factors that explain or mitigate the noncompliance; and

   d. An approximate date by which the Permittee will perform the required action. After a notification of noncompliance has been filed, compliance with the past-due requirement shall be reported by submitting any required documents or providing EPA with a written report indicating that the required action has been achieved.

3. Submissions required by this Order shall be in writing and should be mailed to the following addresses:

   U.S. Environmental Protection Agency
   Region I
   One Congress Street, Suite 1100 (SEW)
   Boston, MA 02114-2023
   Attn: Joy Hilton

   and

New Hampshire Department of Environmental Services
Bureau of Wastewater Engineering
P.O. Box 95 - 29 Hazen Drive
Concord, NH 03302-0095
Attn: Margaret Bastien

V. GENERAL PROVISIONS

I. This Order does not constitute a waiver or a modification of the terms and conditions of the NPDES Permit. The NPDES Permit remains in full force and effect. EPA reserves the right to seek any and all remedies available under Section 309 of the Act, 33 U.S.C. § 1319, as amended, for any violation cited in this Order.

2. This Order shall become effective upon receipt by the Permittee.

08/01/07
Date

Susan Studlien
Susan Studlien, Director
Office of Environmental Stewardship
Environmental Protection Agency, Region I

In the Matter of the City of Portsmouth, New Hampshire

ATTACHMENT A
INTERIM EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS for Outfall Serial Number 001

Effluent Characteristic	Discharge Limitations			Monitoring Requirements	
	Average Monthly	Average Weekly	Maximum Daily	Measure-ment Frequency	Sample Type
Flow	Report	–	Report	Continuous	Recorder
Biochemical Oxygen Demand$_5$ ("BOD_5") mg/l (lbs/day)	150(6005)	Report	Report	2/week	24-Hour Composite
Total Suspended Solids ("TSS") mg/l (lbs/day)	95(3803)	Report	Report	2/week	24-hour composite
BOD_5 Minimum Percent Removal	30	--	--	1/Month	Calculated
TSS Minimum Percent Removal	30	--	--	1/Month	Calculated
Total Residual Chlorine[a]	See Permit	--	See Permit	2/Day	Grab
Chlorine Usage[a]	--	--	--	Continuous	SCADA System
Whole Effluent Toxicity[b], LC50, % effluent	--	--	Report	1/Year	24-Hour Composite
(WET Sample) Ammonia as Nitrogen, Total Recoverable Al, Cd, Cu, Pb, Ni, Zn	--	--	Report	1/Year	24-Hour Composite

Footnote[a]: Use the SCADA system to monitor the fluid level of the bulk chlorine storage tank and maintain a bound logbook with complete records of chemical use, chemical feed pumps activity, any alarms for chemical feed pump failure and leakage, chlorination system maintenance and repair, and SCADA system maintenance.
Footnote[b]: Beginning in 2008, the tests shall be performed during the July-September calendar quarter using *Menidia beryllina* and *Mysidopsis bahia* with results postmarked by October 15th.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
1 CONGRESS STREET, SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023

CERTFIED MAIL – RETURN RECEIPT REQUESTED

AUG 01 2007

Mr. John P. Bohenko
City Manager
City Hall
1 Junkins Avenue
Portsmouth, MA 03801

Re: NPDES Permit No. NH0100234
Administrative Order Docket No. 07-016

Dear Mr. Bohenko:

Enclosed is an Administrative Order (the "Order") issued to the City of Portsmouth ("City" or "Portsmouth") for violations of NPDES Permit No. NH0100234 which was issued to the City on April 10, 2007 ("2007 Permit"). The 2007 Permit authorizes the City to discharge treated wastewater from Outfall No. 001 that meets secondary treatment-based standards, and requires wet-weather discharges from the City's four combined sewer overflow ("CSO") outfalls to receive a level of treatment necessary to achieve compliance with water quality standards.

The Order cites the City for discharges from the City's chemically-enhanced primary wastewater treatment plant that exceed the five-day biochemical oxygen demand, total suspended solids, and acute whole effluent toxicity ("WET") limits contained in its reissued NPDES Permit. Additionally, the Order finds that the City does not record residual chlorine on a continuous recorder as required by its NPDES Permit, and that untreated combined sewage discharges from its CSO outfalls contain bacteria concentrations that cause or contribute to violations of state water quality standards.

The Order requires the City to submit a Technical Memorandum summarizing the results of Tasks 1 and 2 evaluations contained in the draft Wastewater Management Plan Scope of Work submitted to EPA in May, 2007, and an engineering report evaluating the causes of the WET limits violations that recommends the corrective measures required to prevent future WET violations. Also, the Order contains interim effluent limitations and monitoring requirements for Outfall No. 001, and an implementation schedule for the CSO abatement projects recommended by the April 2005 *Final CSO Long Term Control Plan*. Violation of the Order may subject the City to further enforcement under Section 309 of the Clean Water Act, in which injunctive relief and penalties may be

sought. Please contact Joy Hilton of my staff regarding any questions that you may have regarding the terms and conditions of the Order. She can be reached at (617) 918-1877.

Sincerely,

Susan Studlien

Susan Studlien, Director
Office of Environmental Stewardship

Enclosure

cc: Stergios Spanos, NHDES
Margaret Bastien, NHDES
Michael Wagner, EPA
Norma Mason, EPA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I

IN THE MATTER OF Portsmouth, New Hampshire NPDES Permit No. NH0100234	)	DOCKET NO. 07-016 FINDINGS OF VIOLATION
	)	AND
Proceedings under Section 309(a)(3) of the Clean Water Act, as amended, 33 U.S.C. §1319(a)(3)	)	ORDER FOR COMPLIANCE

I. STATUTORY AUTHORITY

The following Findings are made and ORDER issued pursuant to Section 309(a)(3) of the Clean Water Act, as amended (the "Act"), 33 U.S.C. §1319(a)(3), which grants to the Administrator of the U.S. Environmental Protection Agency ("EPA") the authority to issue orders requiring persons to comply with Sections 301, 302, 306, 307, 308, 318 and 405 of the Act and any permit condition or limitation implementing any of such sections in a National Pollutant Discharge Elimination System ("NPDES") permit issued under Section 402 of the Act, 33 U.S.C. §1342. This authority has been delegated to EPA Region I's Regional Administrator, and in turn to the Director of the Office of Environmental Stewardship (the "Director").

The Order herein is based on findings of violations of Section 301 of the Act, 33 U.S.C. §1311, and the conditions of NPDES Permit No. NH0100234. Pursuant to Section 309(a)(5)(A) of the Act, 33 U.S.C. §1319(a)(5)(A), the Order provides a schedule for compliance which the Director has determined to be reasonable.

II. FINDINGS

The Director makes the following findings of fact:

1. The City of Portsmouth, New Hampshire (the "Permittee" or "City") is a municipality, as defined in Section 502(4) of the Act, 33 U.S.C. §1362(4).

2. The City is a person under Section 502(5) of the Act, 33 U.S.C §1362(5). The City is the owner and operator of a Publicly-Owned Treatment Works, which includes a wastewater treatment facility (the "WWTF") and four combined sewer overflow (CSO") outfalls from which pollutants, as defined in Section 502(6) and (12) of the Act, 33 U.S.C. §§1362(6) and (12), are discharged from a point source, as defined in Section 502(14) of the Act, 33 U.S.C. § 1362(14), to the Piscataqua River and South Mill Pond. The WWTF is a 4.8 million gallons per day ("MGD") chemically-enhanced primary wastewater treatment facility that discharges an average daily flow of approximately 3.5 MGD of treated wastewater to the Piscataqua River during dry weather. South Mill Pond flows into the Piscataqua River which flows into the Atlantic Ocean. All three waterways are Class B waterways and waters of the United States as defined in 40 C.F.R. §122.2 and, therefore, are navigable waters under Section 502(7) of the Act, 33 U.S.C. §1362(7).

3. Section 301(a) of the Act, 33 U.S.C. §1311(a), makes unlawful the discharge of pollutants to waters of the United States except in compliance with, among other things, the terms and conditions of an NPDES Permit issued pursuant to Section 402 of the Act, 33 U.S.C. §1342.

4. On April 10, 2007, the City was reissued NPDES Permit No. NH0100234 ("NPDES Permit") by the Director of the Office of Ecosystem Protection of EPA, Region I, under the authority of Section 402 of the Clean Water Act, 33 U.S.C. §1342. The effective date of the NPDES Permit is August 1, 2007. It will expire on July 31, 2012. The NPDES Permit supersedes the NPDES permit issued on January 18, 1985.

5. The NPDES Permit authorizes the City to discharge pollutants from a point source (Outfall No. 001) at the WWTF to the Piscataqua River and from four CSO outfalls (Outfall No. 010A, Outfall No. 010B, Outfall No. 012 and Outfall No. 013) to South Mill Pond and the Piscataqua River, subject to the effluent limitations, monitoring requirements and other conditions specified in the NPDES Permit.

6. Section I.A.1. of the NPDES Permit includes secondary treatment-based effluent limitations for discharges from Outfall No. 001. The limited parameters include five-day biochemical oxygen demand ("BOD_5") and total suspended solids ("TSS"), water quality criteria-based limits for total residual chlorine, and water-quality-standards-based limits for pH and fecal coliform bacteria. The NPDES Permit also includes an acute whole effluent toxicity ("WET") limitation and monitoring requirements.

7. The Permittee's discharge of BOD_5, TSS, and acute WET to the Piscataqua River exceed the BOD_5, TSS, and acute WET limits in the NPDES Permit.

8. Section I.F.3. of the NPDES Permit requires that residual chlorine levels prior to dechlorination be reported using a continuous recorder.

9. The Permittee does not record residual chlorine with a continuous recorder.

10. Section I.C.1.a.(1) of the NPDES Permit requires that CSO discharges receive a level of treatment necessary to achieve compliance with water quality standards.

11. The Permittee discharges untreated combined sewage that contains bacteria at concentrations that cause or contribute to the exceedance state water quality standards in the receiving waters.

12. Section 301(a) of the Act, 33 U.S.C. §1311(a), makes unlawful the discharge of pollutants to waters of the United States except in compliance with, among other things, the terms and conditions of an NPDES permit issued pursuant to Section 402 of the Act, 33 U.S.C. §1342.

13. The Permittee's discharge of wastewater from Outfall No. 001 to the Piscataqua River in excess of the limits contained in the NPDES Permit, the failure to install and maintain a residual chlorine recorder prior to dechlorination, and the discharges of wastewater with bacteria from Outfalls 010A, 010B, 012 and 013 which caused levels of bacteria in the receiving water to exceed the State Water Quality Standards occurred in violation of the NPDES Permit and Section 301(a) of the Act, 33 U.S.C. § 1311(a).

III. ORDER

Accordingly, it is hereby ordered that the Permittee shall:

1. Wastewater Facilities Study of both CSO and Secondary Treatment Options:

By October 19, 2007, prepare and submit to EPA and the New Hampshire Department of Environmental Services ("NHDES") a Technical Memorandum

summarizing the results of the City's Tasks 1 and 2 evaluations itemized in draft Wastewater Management Plan Scope of Work submitted to EPA on May 23, 2007.

2. Interim Effluent Limitations:

   a. The City shall comply with the interim effluent limitations and monitoring requirements for Outfall No. 001 contained in **Attachment A** of this Order.

   b. The Permittee shall also comply with all effluent limitations, monitoring requirements and other conditions specified in the NPDES Permit for the parameters not covered in **Attachment A**. It is the Permittee's obligation to operate the treatment facilities in a manner so as to maximize removal efficiencies and effluent quality.

3. Whole Effluent Toxicity:

   Within 90 days of receipt of this Order, submit to EPA and the NH DES a detailed engineering report that: (1) evaluates the specific causes of violations of the acute whole effluent toxicity limitation contained in the NPDES Permit; and (2) recommends corrective measures to eliminate these violations.

4. Combined Sewer Overflow Abatement Projects:

The City shall implement CSO abatement projects defined in its April 2005 *Final CSO Long Term Control Plan* in accordance with the following schedule:

Planning Area I.D.	Contract I.D.	Project Start Date	Project Completion Date
Lincoln	2	4/1/2007	7/1/2009
Lincoln	2A	7/1/2008	11/1/2010
Lincoln	3	4/1/2009	7/1/2011
Lincoln	3A	4/1/2010	7/1/2012
Borthwick	Interceptor	Under Design	1/1/2010
Court	Court #2	Under Construction	1/1/2009
Court/State	Court #3	1/1/2008	1/1/2012
Islington	Islington #1	Under Design	7/1/2009
Islington	Islington #2	7/1/2009	1/1/2012
Deer Street PS		Under Construction	7/1/2007
Mechanic Street PS		1/1/2009	4/1/2010
Revisit 2005 LTCP Flow Monitoring		1/1/2008	7/1/2008

5. Quarterly Progress and Work Projection Reports:

Beginning with the calendar quarter ending September 2007, submit quarterly reports on the City's progress in implementing the provisions of this Order. The reports shall be submitted by the last day of the month following the calendar quarter monitoring period. At a minimum, these progress reports shall include a description of: (1) activities undertaken during the reporting period directed at achieving compliance with this Order; (2) a summary of the status of all plans, reports, and other deliverables required by this Order that the City completed and submitted during the reporting period; and (3) expected activities to be completed during the next reporting period in order to achieve compliance with this Order.

IV. NOTIFICATION PROCEDURES

1. Where this Order requires a specific action to be performed within a certain time frame, the Permittee shall submit a written notice of compliance or noncompliance with each deadline. Notification must be mailed within fourteen (14) days after each required deadline. The timely submission of a required report shall satisfy the requirement that a notice of compliance be submitted.

2. If noncompliance is reported, notification should include the following information:

   a. A description of the noncompliance;

   b. A description of any actions taken or proposed by the Permittee to comply with the lapsed schedule requirements;

   c. A description of any factors that explain or mitigate the noncompliance; and

   d. An approximate date by which the Permittee will perform the required action. After a notification of noncompliance has been filed, compliance with the past-due requirement shall be reported by submitting any required documents or providing EPA with a written report indicating that the required action has been achieved.

3. Submissions required by this Order shall be in writing and should be mailed to the following addresses:

   U.S. Environmental Protection Agency
   Region I
   One Congress Street, Suite 1100 (SEW)
   Boston, MA 02114-2023
   Attn: Joy Hilton

   and

New Hampshire Department of Environmental Services
Bureau of Wastewater Engineering
P.O. Box 95 - 29 Hazen Drive
Concord, NH 03302-0095
Attn: Margaret Bastien

V. GENERAL PROVISIONS

1. This Order does not constitute a waiver or a modification of the terms and conditions of the NPDES Permit. The NPDES Permit remains in full force and effect. EPA reserves the right to seek any and all remedies available under Section 309 of the Act, 33 U.S.C. § 1319, as amended, for any violation cited in this Order.

2. This Order shall become effective upon receipt by the Permittee.

08/01/07
Date

Susan Studlien
Susan Studlien, Director
Office of Environmental Stewardship
Environmental Protection Agency, Region I

In the Matter of the City of Portsmouth, New Hampshire

ATTACHMENT A
INTERIM EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS for Outfall Serial Number 001

Effluent Characteristic	Discharge Limitations			Monitoring Requirements	
	Average Monthly	Average Weekly	Maximum Daily	Measure-ment Frequency	Sample Type
Flow	Report	–	Report	Continuous	Recorder
Biochemical Oxygen Demand$_5$ ("BOD$_5$") mg/l (lbs/day)	150(6005)	Report	Report	2/week	24-Hour Composite
Total Suspended Solids ("TSS") mg/l (lbs/day)	95(3803)	Report	Report	2/week	24-hour composite
BOD$_5$ Minimum Percent Removal	30	--	--	1/Month	Calculated
TSS Minimum Percent Removal	30	--	--	1/Month	Calculated
Total Residual Chlorine[a]	See Permit	--	See Permit	2/Day	Grab
Chlorine Usage[a]	--	--	--	Continuous	SCADA System
Whole Effluent Toxicity[b], LC50, % effluent	--	--	Report	1/Year	24-Hour Composite
(WET Sample) Ammonia as Nitrogen, Total Recoverable Al, Cd, Cu, Pb, Ni, Zn	--	--	Report	1/Year	24-Hour Composite

Footnote[a]: Use the SCADA system to monitor the fluid level of the bulk chlorine storage tank and maintain a bound logbook with complete records of chemical use, chemical feed pumps activity, any alarms for chemical feed pump failure and leakage, chlorination system maintenance and repair, and SCADA system maintenance.
Footnote[b]: Beginning in 2008, the tests shall be performed during the July-September calendar quarter using *Menidia beryllina* and *Mysidopsis bahia* with results postmarked by October 15th.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I

IN THE MATTER OF Portsmouth, New Hampshire NPDES Permit No. NH0100234	)	DOCKET NO. 07-016
	)	FINDINGS OF VIOLATION
	)	AND
Proceedings under Section 309(a)(3) of the Clean Water Act, as amended, 33 U.S.C. §1319(a)(3)	)	ORDER FOR COMPLIANCE

I. STATUTORY AUTHORITY

The following Findings are made and ORDER issued pursuant to Section 309(a)(3) of the Clean Water Act, as amended (the "Act"), 33 U.S.C. §1319(a)(3), which grants to the Administrator of the U.S. Environmental Protection Agency ("EPA") the authority to issue orders requiring persons to comply with Sections 301, 302, 306, 307, 308, 318 and 405 of the Act and any permit condition or limitation implementing any of such sections in a National Pollutant Discharge Elimination System ("NPDES") permit issued under Section 402 of the Act, 33 U.S.C. §1342. This authority has been delegated to EPA Region I's Regional Administrator, and in turn to the Director of the Office of Environmental Stewardship (the "Director").

The Order herein is based on findings of violations of Section 301 of the Act, 33 U.S.C. §1311, and the conditions of NPDES Permit No. NH0100234. Pursuant to Section 309(a)(5)(A) of the Act, 33 U.S.C. §1319(a)(5)(A), the Order provides a schedule for compliance which the Director has determined to be reasonable.

CONCURRENCES

SYMBOL	SEW	SEW	SEA	SPH			
SURNAME	Hilton	Lundstedt	Weaver	Studlien			
DATE	7/24/07	7/26/07	7/26/07	08/01/07			

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EPA Form 1320-1A (1/90)

Printed on Recycled Paper

CERTFIED MAIL – RETURN RECEIPT REQUESTED

Mr. John P. Bohenko
City Manager
City Hall
1 Junkins Avenue
Portsmouth, MA 03801

Re: NPDES Permit No. NH0100234
Administrative Order Docket No: 07-016

Dear Mr. Bohenko:

Enclosed is an Administrative Order (the "Order") issued to the City of Portsmouth ("City" or "Portsmouth") for violations of NPDES Permit No. NH0100234 which was issued to the City on April 10, 2007 ("2007 Permit"). The 2007 Permit authorizes the City to discharge treated wastewater from Outfall No. 001 ~~meeting~~ that the secondary treatment-based standards, and requires wet-weather discharges from the City's four combined sewer overflow ("CSO") outfalls to receive a level of treatment necessary to achieve compliance with Federal or State water quality standards.

The Order cites the City for discharges from the City's chemically-enhanced primary wastewater treatment plant that ~~will~~ exceed the five-day biochemical oxygen demand, total suspended solids, and acute whole effluent toxicity ("WET") limits contained in its reissued NPDES Permit. Additionally, the Order finds that the City does not record residual chlorine on a continuous recorder as required by its NPDES Permit, and that untreated combined sewage discharges from its CSO outfalls contain bacteria concentrations that cause or contribute to violations of the state water quality standards.

The Order requires the City to submit a Technical Memorandum summarizing the results of Tasks 1 and 2 evaluations contained in the draft Wastewater Management Plan Scope of Work submitted to EPA in May, 2007, and an engineering report evaluating the causes of the WET limits violations that recommends the corrective measures required to prevent future WET violations. Also, the Order contains interim effluent limitations and monitoring requirements for Outfall No. 001, and an implementation schedule for the CSO abatement projects recommended by the April 2005 *Final CSO Long Term Control Plan*. Violation of the Order may subject the City to further enforcement under Section 309 of the Clean Water Act, in which injunctive relief and penalties may be

SYMBOL							
SURNAME							
DATE	7/24/07	7/25/07	7/26/07	08/01/07			

EPA Form 1320-1A (1/90) *Printed on Recycled Paper* OFFICIAL FILE COP

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I

Privileged and Confidential
Prepared in Anticipation of Litigation
Attorney-Client Communication
FOIA Exempt

Memorandum

Date:

Subj: Executive Summary
Administrative Order Docket No. 07-016
City of Portsmouth, New Hampshire

From: Joy Hilton
Engineer (918-1877)

Michael Wagner
Senior Enforcement Counsel (918-1735)

To: Susan Studlien, Director
Office of Environmental Stewardship

I. Type and Location of Facility

The City of Portsmouth, New Hampshire (the "Permittee" or "City") owns and operates a publicly-owned treatment works ("POTW") that includes a 4.8 million gallon per day ("MGD") chemically-enhanced primary wastewater treatment plant ("treatment plant"), which treats wastewater from domestic, industrial and commercial sources. During dry weather, the treatment plant treats and discharges an average daily flow of 3.5 MGD of wastewater through a 0.6 meter diameter, single port outfall to the Piscataqua River. The wastewater collection system tributary to the treatment plant is a combined sewer system with four combined sewer overflow ("CSO") outfalls. Two CSO outfalls discharge to the Piscataqua River, and two to South Mill Pond. South Mill Pond flows into the Piscataqua River, which flows into the Atlantic Ocean. All three waterways are Class B waterways and navigable waters of the United States.

In November 1990, the City, the State of New Hampshire and EPA entered into a judicial Consent Decree, Civil Action Docket No. 89-234-S, ("CD"). The CD required 1) the City to enhance its primary treatment facility, 2) CSO monitoring, and 3) the development and implementation of a CSO Facilities Plan. The treatment facility improvements were completed in February 1992, CSO monitoring was initiated in April 1990, and a draft final CSO Facilities Plan was submitted to EPA and NHDES in January 1991 ("1991 CSO Plan"). Later, EPA issued Administrative Order Docket No.

02-15 which required the City: 1) to prepare and submit a final Long Term Control Plan ("LTCP") for CSO's consistent with EPA's 1994 CSO Policy and EPA's 1997 CSO-Guidance for Financial Capability Assessment and Schedule Development; 2) to update its Nine Minimum Controls ("NMC") documentation; 3) to submit a proposed schedule for CSO project design and construction; and 4) to advertise for bids for CSO abatement construction projects in the subareas tributary to CSO Outfalls Nos. 010A and 010B. The City updated the 1991 CSO Plan when it submitted a LTCP and NMC report in August 2002 and a final LTCP in April 2005. The City has implemented various CSO abatement projects throughout the years.

II. Nature and Environmental Significance of Violations

In accordance with a waiver under Section 301(h) of the CWA, EPA, on January 18, 1985, authorized the City to discharge wastewater without meeting secondary treatment requirements through NPDES Permit No. NH0100234 ("1985 Permit"). The 1985 Permit expired on January 18, 1990, but was administratively continued pursuant to 40 C.F.R. § 122.6, due to timely reapplication by the City. The City also reapplied for a Section 301(h) waiver at that time.

The 1987 amendments to Section 301(h) of the CWA prohibit granting waivers for discharges of pollutants into saline estuarine waters that do not support a balanced, indigenous population of shellfish, fish and wildlife and recreational uses at the time of application. The prohibition applies whether or not a causal relationship exists between the applicant's current or proposed discharge and the failure of the receiving waters to meet standards.

The City's chemically-enhanced primary treatment plant discharges from Outfall No. 001 into the lower Piscataqua River, which is classified as an estuary. The lower Piscataqua is included in the State of New Hampshire's 2004 listing of "threatened or impaired waters" as not supporting the following uses: primary contact recreation; fish consumption; or shellfishing. With the recent reissuance of the City's NPDES Permit, EPA formally denied the City's application for a CWA Section 301(h) waiver and requires the City's treatment plant discharge to comply with secondary treatment-based limits and water quality. The City's Permit was reissued on April 10, 2007 ("2007 Permit"), becomes effective on August 1, 2007, and expires on July 31, 2012.

This order addresses three separate violations:

1) The 2007 Permit authorizes the City to discharge treated wastewater meeting the secondary treatment-based standards of 40 C.F.R. Part 133 from Outfall No. 001, and requires wet-weather discharges from the City's four CSO outfalls to receive a level of treatment necessary to achieve compliance with Federal or State water quality standards. Because its primary wastewater

treatment plant can not comply with the limits contained in its 2007 Permit, the Permittee will discharge pollutants from the treatment plant to the Piscataqua River in concentrations greater than the effluent limitations contained in the Permit.

2) The City had installed a continuous residual chlorine recorder upstream of dechlorination facilities with unsuccessful results because it was being used on primary effluent that fouled the recorder. The City removed the recorder and therefore can not continuously monitor residual chlorine in violation of the City's 2007 Permit.

3) Untreated wet-weather discharges from the City's CSO outfalls contributed to excursions from State water quality standards in violation of the 2007 Permit.

III. Type of Action

It is recommended that the enclosed EPA Administrative Order (the "Order") be issued to the City of Portsmouth. The City has submitted a draft Wastewater Master Plan Scope of Work for siting a new treatment plant and addressing CSOs. The Order requires the City to complete Tasks 1 and 2 of the draft Plan and to prepare and submit a draft Technical Memorandum ("TM") summarizing the findings by October 19, 2007. Among other things, Task 1 includes: identifying the boundaries of the study area; identifying alternative treatment facility sites; identifying regional communities that may be included in the study area and holding meetings with area communities to introduce the project; performing a preliminary evaluation of regional needs including wastewater disposal, biosolids, septage and fats, oils and grease services, equipment life and structure life, land requirements and build-out conditions; and defining goals for the Waste Master Plan. Task 2 is a regulatory requirements review.

The Order also includes interim effluent limitations for BOD_5, TSS, BOD minimum percent removal, TSS minimum percent removal, and acute whole effluent toxicity. We expect that these provisions and related matters will be addressed in a modification to the City's existing consent decree.

IV. Contacts with the City

EPA's Office of Environmental Stewardship has communicated with the City during Order development.

V. External Interest or Contacts

NH DES and EPA have agreed that the EPA will issue the proposed Order to the City for the violations listed above. Other Permit violations concerning CSO and WWTF discharges will be also be addressed in a separate enforcement action.

The Conservation Law Foundation ("CLF") has shown a high degree of interest in this matter. CLF objects to the full three years the City has requested for completing its Wastewater Master Plan. This proposed Order, therefore, only requires the first stages of the process in order to further define the time period required to complete the Wastewater Master Plan. We are encouraging the City and CLF to negotiate a resolution. We will need to modify the existing consent decree, and hope that all interested parties agree before the consent decree modification is available for public comment.

VI. EPA/NHDES Staff Contacts

EPA:

Michael Wagner	(918-1735)
Joy Hilton	(918-1877)
Damien Houlihan	(918-1586)

NHDES:

Harry Stuart	(603-271-3308)
John Bush	(603-271-2001)
Stergios Spanos	(603-271-6637)
Margaret Bastien	(603-271-2755)

ATTACHMENT 1

PORTSMOUTH, NH
NPDES PERMIT NO. NH0100234

	BOD MO AVE MG/L	BOD MO AVE LB/D	TSS MO AVE MG/L	TSS MO AVE LB/D	TRC DAILY MAX MG/L
1985 PERMIT LIMITS	**150**	**5630**	**125**	**4691**	Narrative Standard
2007 PERMIT LIMITS	**30**	**1201**	**30**	**1201**	**0.57**
Jan-05	124.0	3618.0	43.0	1917.0	0.90
Feb-05	89.0	3728.0	54.0	2533.0	0.90
Mar-05	78.0	4557.0	48.0	2631.0	0.60
Apr-05	79.0	4106.0	44.0	2233.0	0.40
May-05	70.7	4206.8	34.4	2414.6	2.00
Jun-05	97.2	4029.5	53.2	2219.0	0.30
Jul-05	124.0	3800.0	53.0	1636.0	0.10
Aug-05	135.2	4215.6	63.3	1957.0	1.10
Sep-05	133.0	3396.0	76.0	1934.0	0.90
Oct-05	82.9	4992.9	63.1	4206.8	0.80
Nov-05	73.9	3306.2	54.4	2456.7	1.50
Dec-05	89.0	4259.0	39.0	1850.0	1.40
Jan-06	72.7	3733.8	50.3	2751.7	1.10
Feb-06	85.0	3901.0	59.0	2844.0	0.80
Mar-06	90.0	3081.0	67.0	2314.0	0.80
Apr-06	73.5	3674.3	49.5	2511.6	0.50
May-06	62.0	4391.0	50.0	**3693.0**	0.60
Jun-06	66.2	3537.8	46.0	2733.3	0.60
Jul-06	79.2	3630.5	49.8	2596.4	0.20
Aug-06	102.0	3719.0	56.0	2067.0	0.10
Sep-06	95.0	3443.0	50.0	1840.0	0.50
Oct-06	91.0	3099.0	42.0	1424.0	0.10
Nov-06	54.0	3423.0	43.0	2765.0	0.25
Dec-06	76.0	3272.0	55.0	2476.0	0.86
Jan-07	77.0	3220.0	59.0	2527.0	1.35
Feb-07	98.0	2744.0	62.0	1738.0	0.10
Mar-07	75.0	3654.0	35.0	1683.0	0.18
AVERAGE	87.9	3731.1	51.8	2368.6	0.70
STANDARD DEVIATION	34.6	25.5	5.7	165.5	0.51
95% CONFIDENCE	**144.7**	3772.8	61.1	2640.0	**1.54**
99% CONFIDENCE	168.3	3790.1	64.9	2752.5	1.88

2005 Draft Permit Average Monthly Limits for BOD and for TSS were 150 mg/l (6005 lbs/day) and 95 mg/l (3824 lbs/day), respectively, based on a review of data from 1/02 through 12/04.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I

Privileged and Confidential
Prepared in Anticipation of Litigation
Attorney-Client Communication
FOIA Exempt

Memorandum

Date:

Subj: Executive Summary
Administrative Order Docket No. 07-016
City of Portsmouth, New Hampshire

From: Joy Hilton
Engineer (918-1877)

Michael Wagner
Senior Enforcement Counsel (918-1735)

To: Susan Studlien, Director
Office of Environmental Stewardship

I. Type and Location of Facility

The City of Portsmouth, New Hampshire (the "Permittee" or "City") owns and operates a publicly-owned treatment works ("POTW") that includes a 4.8 million gallon per day ("MGD") chemically-enhanced primary wastewater treatment plant ("treatment plant"), which treats wastewater from domestic, industrial and commercial sources. During dry weather, the treatment plant treats and discharges an average daily flow of 3.5 MGD of wastewater through a 0.6 meter diameter, single port outfall to the Piscataqua River. The wastewater collection system tributary to the treatment plant is a combined sewer system with four combined sewer overflow ("CSO") outfalls. Two CSO outfalls discharge to the Piscataqua River, and two to South Mill Pond. South Mill Pond flows into the Piscataqua River, which flows into the Atlantic Ocean. All three waterways are Class B waterways and navigable waters of the United States.

In November 1990, the City, the State of New Hampshire and EPA entered into a judicial Consent Decree, Civil Action Docket No. 89-234-S, ("CD"). The CD required 1) the City to enhance its primary treatment facility, 2) CSO monitoring, and 3) the development and implementation of a CSO Facilities Plan. The treatment facility improvements were completed in February 1992, CSO monitoring was initiated in April 1990, and a draft final CSO Facilities Plan was submitted to EPA and NHDES in January 1991 ("1991 CSO Plan"). Later EPA issued Administrative Order Docket No.

SYMBOL							
SURNAME	Hilton	Wagner	Studlien				
DATE	7/26/07	7/26/07	08/01/07				

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U.S. ENVIRONMENTAL PROTECTION AGENCY
Region I
1 Congress Street, Suite 1100; Boston, MA 02114-2023

MEMORANDUM

DATE:

SUBJ: Administrative Order issued to the City of Portsmouth, New Hampshire
NPDES Permit No. NH0100234

FROM: Denny Dart, Chief
Water Technical Unit

TO: See Distribution

This is to inform you that the Water Technical Unit issued an Administrative Order to the City of Portsmouth, New Hampshire (the "City") under Section 309 of the Clean Water Act on the above date. The Order cites the City for discharges from the City's chemically-enhanced primary wastewater treatment plant that exceed the five-day biochemical oxygen demand, total suspended solids, and acute whole effluent toxicity ("WET") limits contained in its reissued NPDES Permit. The City's NPDES Permit was reissued on April 10, 2007 and will become effective on August 1, 2007. Additionally, the Order finds that the City does not continuously record residual chlorine as required by its NPDES Permit, and that untreated combined sewage discharges from its CSO outfalls contain bacteria concentrations that cause or contribute to violations of the state water quality standards.

The Order requires the City to submit a Technical Memorandum summarizing the results of Tasks 1 and 2 evaluations contained in the draft Wastewater Management Plan Scope of Work submitted to EPA in May, 2007, and an engineering report evaluating the causes of the WET limits violations that recommends the corrective measures required to prevent future WET violations. Also, the Order contains interim effluent limitations and monitoring requirements for Outfall No. 001, and an implementation schedule for the CSO abatement projects recommended by the April 2005 *Final CSO Long Term Control Plan*.

If you have any questions regarding the terms and conditions of the Order, please contact Joy Hilton of the Water Technical Unit at (617) 918-1877.

Distribution:
R1 OES Managers via LAN
Carl DeLoi via LAN
Michael Wagner via LAN
Joel Blumstein via LAN
Joan Serra via LAN
Order File

	CONCURRENCES							
SYMBOL			SPAA					
SURNAME	Hilton	Wagner	Struckhoff					
DATE	7/26/07	7/26/07	08/01/07					

PUBLIC WORKS DEPARTMENT

CITY OF PORTSMOUTH
680 Peverly Hill Road
Portsmouth N.H. 03801
(603) 427-1530 FAX (603) 427-1539

October 30, 2007

U.S. Environmental Protection Agency
Region I
One Congress Street, Suite 1100 (SEW)
Boston, MA 02114-2023
Attn: Joy Hilton

Re: Administrative Order Docket No. 07-016
Quarterly Report 1
Portsmouth, New Hampshire

Dear Ms. Hilton:

In accordance with Administrative Order No 07-016, dated August 1, 2007, the City of Portsmouth is submitting the 1st quarterly report. The Administrative Order required:

1. Wastewater Facilities Study of both CSO and Secondary Treatment Options:
Within 60 days of receipt of this Order, prepare and submit to EPA and the New Hampshire Department of Environmental Services ("NHDES") a Technical Memorandum summarizing the results of the City's Tasks 1 and 2 evaluations itemized in draft Wastewater Management Plan Scope of Work submitted to EPA in May, 2007.

This requirement was fulfilled with the submission of Technical Memorandums for Task 1 and Task 2 on October 19, 2007.

2. Interim Effluent Limitations:
   a. The City shall comply with the interim effluent limitations and monitoring requirements for Outfall No. 001 contained in **Attachment A** of this Order.
   b. The Permittee shall also comply with all effluent limitations, monitoring requirements and other conditions specified in the NPDES Permit for the parameters not covered in **Attachment A**. It is the Permittee's obligation to operate the treatment facilities in a manner so as to maximize removal efficiencies and effluent quality.

The City is complying with this requirement.

3. Whole Effluent Toxicity:
Within 90 days of receipt of this Order, submit to EPA and the NH DES a detailed engineering report that: (1) evaluates the specific causes of violations of the acute whole

effluent toxicity limitation contained in the NPDES Permit; and (2) recommends corrective measures to eliminate these violations.

See attached letter report submitted to the City by Underwood Engineers dated October 31, 2007.

4. Combined Sewer Overflow Abatement Projects:
The City shall implement CSO abatement projects defined in its April 2005 *Final CSO Long Term Control Plan* in accordance with the following schedule:

See updated Table below listing accomplishments

Planning Area I.D.	Contract I.D.	Project Start Date	Project Completion Date	Status as of 10/31/07
~~Lincoln~~	~~2~~	~~4/1/2007~~	~~7/1/2009~~	**Completed**
Lincoln	**2A** [(1)]	7/1/2008	11/1/2010	**Advertised for Engineering Services October 15th. Proposal due November 14, 2007**
Lincoln	3	4/1/2009	7/1/2011	
Lincoln	3A	4/1/2010	7/1/2012	
~~Borthwick~~	~~Interceptor~~	~~Under Design~~	~~1/1/2010~~	**Completed**
~~Court~~	~~Court #2~~	~~Under Construction~~	~~1/1/2009~~	**Completed**
Court/State	Court #3	1/1/2008	1/1/2012	
Islington	Islington #1	Under Design	7/1/2009	**On-going**
Islington	Islington #2	7/1/2009	1/1/2012	
~~Deer Street PS~~		~~Under Construction~~	~~7/1/2007~~	**Completed**
Mechanic Street PS		1/1/2009	4/1/2010	
Revisit 2005 LTCP Flow Monitoring		1/1/2008	7/1/2008	

Table Notes: [(1)] In an effort to expedite sewer separation, project 2A has been incorporated into projects 3, 4, and 5, these projects will be designed as one project and bid out in phases.

Please call me at 603-766-1416 if you have any additional questions or require additional information.

Very truly yours,

City of Portsmouth

Peter H. Rice, P.E.
City Engineer, Water and Sewer Divisions

cc: Mr. John P. Bohenko, City Manager, City of Portsmouth
Margaret Bastien, NHDES
Suzanne Woodland, Assistant City Attorney
Mark Allenwood, P.E., Weston and Sampson Engineers

Underwood
Engineers, Inc.

Civil-Environmental

25 Vaughan Mall, Unit 1, Portsmouth, New Hampshire 03801-4012 Tel: 603-436-6192 Fax: 603-431-4733

1401

October 30, 2007

Peter H. Rice P. E.
Department of Public Works
680 Peverly Hill Road
Portsmouth, New Hampshire 03801

Re: NPDES Permit No NH0100234
Administrative Order Docket No. 07-016 – WET Limits Violations
Peirce Island WWTF
Portsmouth, New Hampshire

Dear Mr. Rice:

In accordance with Administrative Order No 07-016, dated August 1, 2007, the City of Portsmouth is required to provide an engineering report evaluating the causes of the Whole Effluent Toxicity (WET) limits violations and recommend corrective measures required to prevent future WET violations.

Executive Summary

Underwood Engineers, Inc. and New England Bioassay, Inc. have reviewed the work performed to date to identify the causes of the WET limits violations. The causes of the toxicity are due in large part to the high level of organics and oxygen demanding substances in the primary treated effluent and to a lesser part the level of surfactants and ammonia present in the primary treated effluent. These high levels of organics, surfactants and ammonia are what can be considered typical levels for primary effluent from a residential community.

The corrective measures required to prevent future WET violations are to provide a higher degree of treatment in order to reduce the levels of pollutants. The City is required to provide secondary treatment with their recently issued NPDES permit. This higher degree of treatment will prevent future WET violations.

In support of the above statements we offer the following summary.

Toxicity Identification Analysis

The City of Portsmouth did not have WET limits in their Peirce Island WWTF NPDES permit until April 10, 2007. In anticipation of more stringent limits and concerns over whole effluent

toxicity along with available dilution, several WET tests were performed over a five year period. Effluent was also manipulated to provide a means to determine the cause of the toxicity. A summary of the effluent WET for several species is included as Attachment A. This summary does not include effluent manipulations and subsequent toxicity measurements.

In general, acute toxicity was tested for two test species beginning in November 2000, with chronic toxicity and acute toxicity tested for three species beginning in April 2004.

Effluent manipulations performed as part of a Toxicity Identification Evaluation (TIE) to characterize and identify, when possible, the sources of toxicity present in the Peirce Island effluent showed that the toxicity was generally nonpersistent and was reduced by aeration. Possible causes for the toxicity include oxygen-demanding substances, surfactants and ammonia. Please see the individual TIE reports for the summary of the manipulations and resulting toxicity estimates.

The acute toxicity, as measured by the 48 hour LC50 values for M. bahia ranged from 26.2% effluent to 96.7% effluent. The A-NOEC values for M. bahia ranged from 12.5% effluent to 86.6% effluent.

The 48 hour LC50 values for M. beryllina ranged from 27% effluent to 100% effluent. The A-NOEC values for M. beryllina ranged from 12.5% effluent to 86.6% effluent.

The chronic toxicity, as measured by the Survival and Growth C-NOEC values for both species ranged from 8% effluent to 50% effluent.

Fertility C-NOEC tests were performed on the A. punctulata, with values ranging from 8 to 16% effluent.

The toxicity results indicate that the whole effluent toxicity was reduced during this time period due to the plant improvements made and the subsequent improvement in effluent quality. These improvements include the following:

- New Headworks screen at the Mechanics Street Pumping Station
- New Headworks modifications to include chemically enhanced primary treatment using ferric chloride/polymer addition
- Sludge storage improvements and gravity thickener optimization
- Belt Filter press dewatering optimization
- Disinfection system improvements including new chemical storage and feed systems, mixing systems and chlorine contact tank modifications form improved contact time
- New SCADA control system for plant operations and maintenance
- Improved staff operations and maintenance skills

New NPDES Permit Requirements for WET Limits

The City of Portsmouth Peirce Island NPDES permit includes new limits for whole effluent toxicity. The limits are based on an available dilution of 43.5. Table 1 lists the new WET limits.

Table 1 – Whole Effluent Toxicity Permit Limits for the Peirce Island WWTF

Effluent Characteristics	**Discharge Limitations**	**Monitoring Requirements**	
	Maximum Daily	Measurement Frequency	Sample Type
Whole Effluent Toxicity, LC50, % Effluent	100	1/Quarter	24 Hr Comp.

EPA Region 1 policy concerning whole effluent toxicity is based on the available dilution. For the Peirce Island WWTF, the EPA is using an available dilution of 43.5. Secondary treatment facilities with a dilution between 20 and 100 must meet an acute toxicity limit of an LC50 of 100% effluent, meaning that 100% effluent cannot kill more than 50% of the test species. No chronic toxicity testing is required.

When the facility is upgraded to meet secondary treatment levels, there is a high probability that all the new WET limits in the NPDES permit will be met.

Corrective Action to Eliminate Violations

In order to eliminate the causes of whole effluent toxicity levels exceeding NPDES permit limits, the City should upgrade their wastewater treatment facility to secondary treatment. Effluent from secondary treatment will be lower in oxygen-demanding substances, lower in oil and grease, and lower in ammonia; these effluent constituents were previously identified in TIE manipulations as primary contributors to whole effluent toxicity.

The upgrade to secondary treatment will improve effluent quality and reduce effluent toxicity to NPDES permit requirements.

Very truly yours,

UNDERWOOD ENGINEERS, INC.

Steve Clifton

W. Steven Clifton, P.E.
Vice President

cc: Mr. John P. Bohenko, City Manager, City of Portsmouth
David S. Allen, P.E., Deputy Director of Public Works, City of Portsmouth
Peter H. Rice, P.E., City Water and Sewer Engineer
John D. Cooney, Ph.D., New England Bioassay, Inc.

ATTACHMENT A

SUMMARY OF HISTORICAL WHOLE EFFLUENT TOXICITY TESTING

ATTACHMENT A
HISTORICAL WET TESTING SUMMARY

10/29/2007

DATE	TEST SPECIES		48 hr LC50		A-NOEC		SURVIVAL		GROWTH		Fertility	
							C-NOEC		C-NOEC		C-NOEC	
11/1/2000	M.bahia		86.6	%	75	%						
	M. beryllina		50	%	25	%						
2/1/2001	M. beryllina		27	%	12.5	%	25	%	12.5	%		
3/1/2001	M. beryllina		39.2	%	25	%	25	%	25	%		
2/1/2002	M. bahia		38.3	%	25	%						
	M. beryllina		39.5	%	25	%						
5/23/2002	M. bahia		37.6	%	25	%						
	M. beryllina		56	%	50	%						
2/26/2002	M. bahia		38.3	%	25	%						
	M. beryllina		39.5	%	25	%						
8/27/2002	M. bahia		26.2	%	12.5	%						
	M. beryllina		32.8	%	25	%						
1/28/2003	M. bahia		38.3	%	25	%						
	M. beryllina		35.4	%	25	%						
4/4/2004	M. bahia	>	32	%	32	%						
	M. beryllina	>	32	%	32	%	32	%	32	%		
	A. punctuata		12.4	%			8	%			8	%
5/2/2004	M. bahia	>	32	%								
	M. beryllina	>	32	%			32	%	32	%		
	A. punctuata										8	%
6/6/2004	M. bahia	>	50	%								
	M. beryllina	>	50	%			32	%	32	%		
	A. punctuata										8	%
7/25/2004	M. bahia		44.5	%								
	M. beryllina	>	50	%								
	A. punctuata						16	%	16	%		
9/26/2004	M. bahia		96.7	%								
	M. beryllina	>	100	%			50	%	50	%		
	A. punctuata										16	%

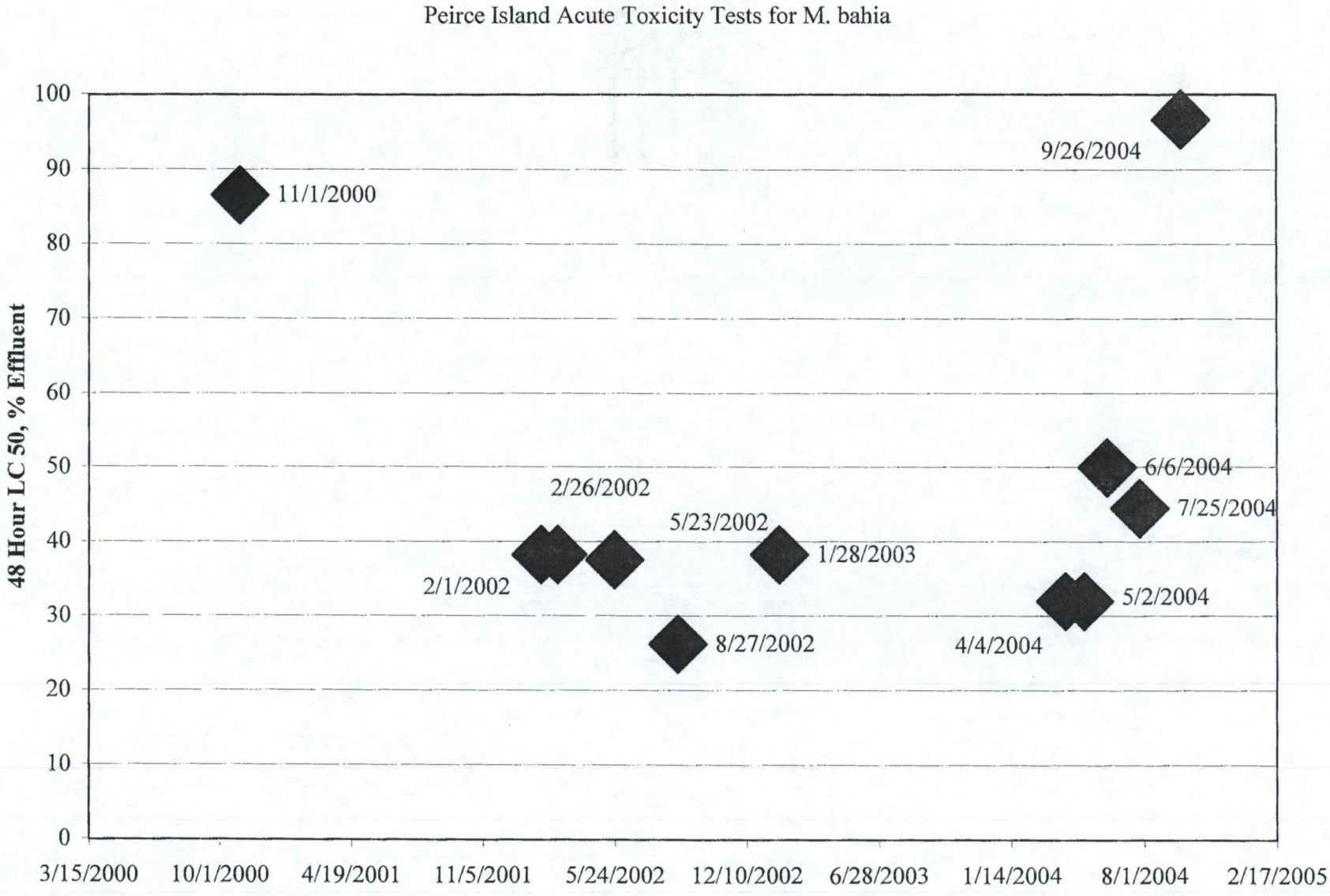
ATTACHMENT A

HISTORICAL WET TESTING SUMMARY

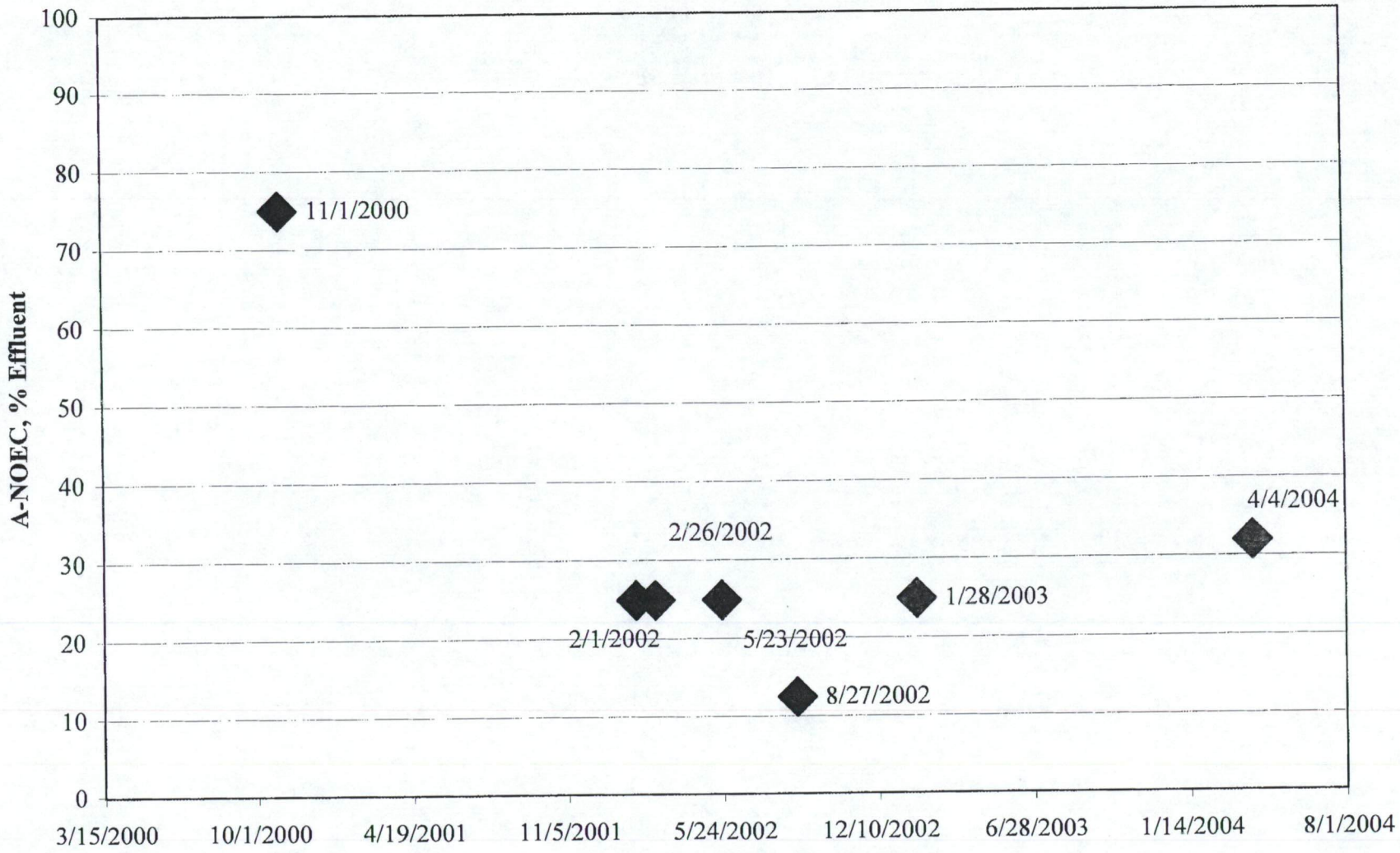
10/29/2007

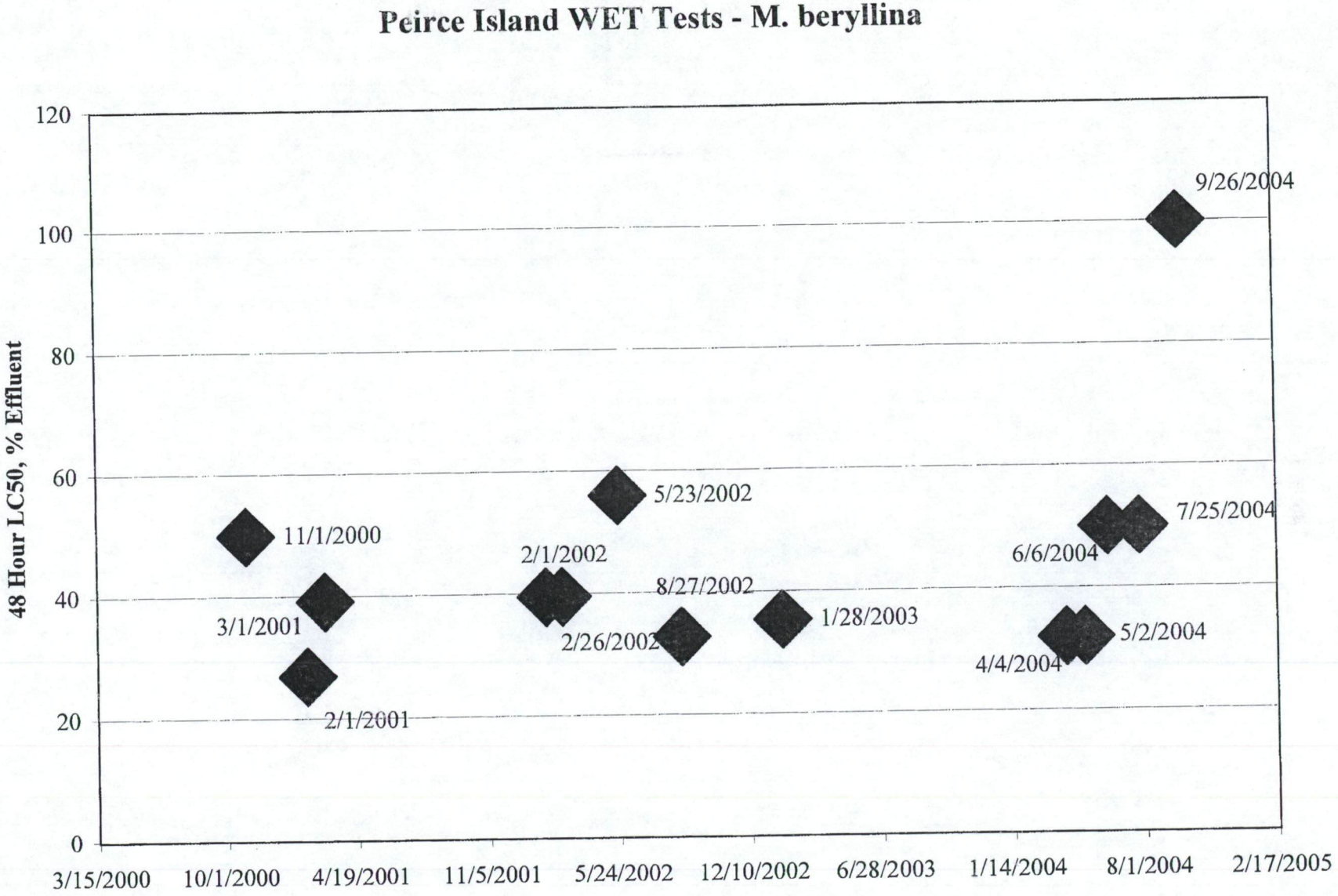
DATE	TEST SPECIES	48 hr LC50	A-NOEC	C-NOEC	C-NOEC	FC-NOEC
11/1/2000	M.bahia	86.6	75			
2/1/2002	M. bahia	38.3	25			
5/23/2002	M. bahia	37.6	25			
2/26/2002	M. bahia	38.3	25			
8/27/2002	M. bahia	26.2	12.5			
1/28/2003	M. bahia	38.3	25			
4/4/2004	M. bahia	32	32			
5/2/2004	M. bahia	32				
6/6/2004	M. bahia	50				
7/25/2004	M. bahia	44.5				
9/26/2004	M. bahia	96.7				
11/1/2000	M. beryllina	50	25			
2/1/2001	M. beryllina	27	12.5	25	12.5	
3/1/2001	M. beryllina	39.2	25	25	25	
2/1/2002	M. beryllina	39.5	25			
5/23/2002	M. beryllina	56	50			
2/26/2002	M. beryllina	39.5	25			
8/27/2002	M. beryllina	32.8	25			
1/28/2003	M. beryllina	35.4	25			
4/4/2004	M. beryllina	32	32	32	32	
5/2/2004	M. beryllina	32		32	32	
6/6/2004	M. beryllina	50		32	32	
7/25/2004	M. beryllina	50				
9/26/2004	M. beryllina	100		50	50	

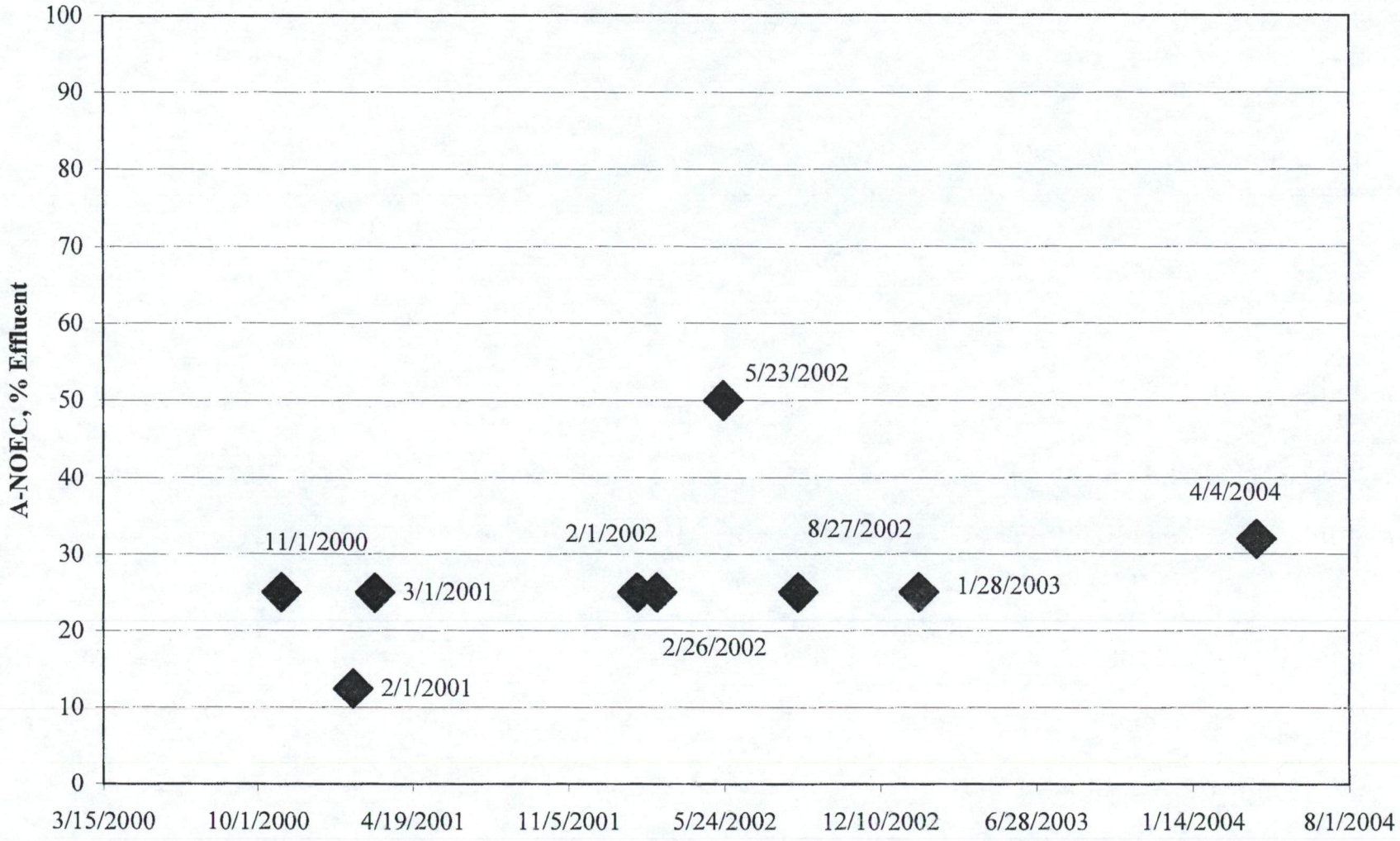
4/4/2004	A. punctuata	12.4		8		8
5/2/2004	A. punctuata					8
6/6/2004	A. punctuata					8
7/25/2004	A. punctuata			16	16	
9/26/2004	A. punctuata					16


Peirce Island Acute Toxicity Tests for M. bahia
48 Hour LC 50, % Effluent
100
90
80
70
60
50
40
30
20
10
0
3/15/2000
10/1/2000
4/19/2001
11/5/2001
5/24/2002
12/10/2002
6/28/2003
1/14/2004
8/1/2004
2/17/2005
11/1/2000
9/26/2004
6/6/2004
7/25/2004
2/26/2002
5/23/2002
1/28/2003
2/1/2002
5/2/2004
8/27/2002
4/4/2004

A-NOEC M. bahia




Peirce Island WET Tests - M. beryllina
48 Hour LC50, % Effluent
120
100
80
60
40
20
0
3/15/2000
10/1/2000
4/19/2001
11/5/2001
5/24/2002
12/10/2002
6/28/2003
1/14/2004
8/1/2004
2/17/2005
9/26/2004
5/23/2002
11/1/2000
7/25/2004
2/1/2002
6/6/2004
8/27/2002
1/28/2003
3/1/2001
2/26/2002
5/2/2004
4/4/2004
2/1/2001


A-NOEC M. beryllina
A-NOEC, % Effluent
100
90
80
70
60
50
40
30
20
10
0
3/15/2000
10/1/2000
4/19/2001
11/5/2001
5/24/2002
12/10/2002
6/28/2003
1/14/2004
8/1/2004
11/1/2000
3/1/2001
2/1/2001
5/23/2002
2/1/2002
2/26/2002
8/27/2002
1/28/2003
4/4/2004

"Peter Rice"
<phrice@pw.cityofportsmouth.com>
10/30/2007 01:21 PM

To <mbastien@des.state.nh.us>, Joy Hilton/R1/USEPA/US@EPA
cc "Suzanne Woodland" <smwoodla@ch.cityofportsmouth.com>, "Dave Allen" <dsallen@pw.cityofportsmouth.com>, "Steve Clifton"
bcc
Subject First Quarterly report

Attached please find a copy of the 1st quarterly report for the Administrative Order Docket No. 07-016. Hard copy will follow.

Peter H. Rice, P.E.
City of Portsmouth
Department of Public Works
Water and Sewer Engineer
Phone: 603-766-1416
Fax: 603-427-1539

1stquarterreport.pdf

"Peter Rice" <phrice@pw.cityofportsmouth.com>

10/29/2007 02:50 PM

To <mbastien@des.state.nh.us>, Joy Hilton/R1/USEPA/US@EPA

cc "Suzanne Woodland" <smwoodla@ch.cityofportsmouth.com>

bcc

Subject Fwd: WET Report for AO

Joy:

Attached please find a copy of the WET test report prepared by Underwood Engineers for the City of Portsmouth. I will forward hard copies of this report along with the first quarterly report for Administrative Order No 07-016 tomorrow. Call if you have any questions.

Peter H. Rice, P.E.
City of Portsmouth
Department of Public Works
Water and Sewer Engineer
Phone: 603-766-1416
Fax: 603-427-1539

>>> "W. Steven Clifton, P.E." <wsclifton@underwoodeng.com> 10/29/2007 1:45 PM >>>
October 29, 2007

Hi Peter,

Here is a PDF of the report prepared for the City that addresses whole effluent toxicity and the causes of and solutions to NPDES permit violations.

Steve

W. Steven Clifton, P.E.

Underwood Engineers, Inc.

25 Vaughan Mall

Portsmouth, New Hampshire 03801

voice 603-436-6192

fax 603-431-4733

cell 603-475-3814

email: wsclifton@underwoodeng.com

1401 WET Report.pdf

Underwood
Engineers, Inc.

Civil-Environmental

25 Vaughan Mall, Unit 1, Portsmouth, New Hampshire 03801-4012 Tel: 603-436-6192 Fax: 603-431-4733

1401

October 30, 2007

Peter H. Rice P. E.
Department of Public Works
680 Peverly Hill Road
Portsmouth, New Hampshire 03801

Re: NPDES Permit No NH0100234
Administrative Order Docket No. 07-016 – WET Limits Violations
Peirce Island WWTF
Portsmouth, New Hampshire

Dear Mr. Rice:

In accordance with Administrative Order No 07-016, dated August 1, 2007, the City of Portsmouth is required to provide an engineering report evaluating the causes of the Whole Effluent Toxicity (WET) limits violations and recommend corrective measures required to prevent future WET violations.

Executive Summary

Underwood Engineers, Inc. and New England Bioassay, Inc. have reviewed the work performed to date to identify the causes of the WET limits violations. The causes of the toxicity are due in large part to the high level of organics and oxygen demanding substances in the primary treated effluent and to a lesser part the level of surfactants and ammonia present in the primary treated effluent. These high levels of organics, surfactants and ammonia are what can be considered typical levels for primary effluent from a residential community.

The corrective measures required to prevent future WET violations are to provide a higher degree of treatment in order to reduce the levels of pollutants. The City is required to provide secondary treatment with their recently issued NPDES permit. This higher degree of treatment will prevent future WET violations.

In support of the above statements we offer the following summary.

Toxicity Identification Analysis

The City of Portsmouth did not have WET limits in their Peirce Island WWTF NPDES permit until April 10, 2007. In anticipation of more stringent limits and concerns over whole effluent

toxicity along with available dilution, several WET tests were performed over a five year period. Effluent was also manipulated to provide a means to determine the cause of the toxicity. A summary of the effluent WET for several species is included as Attachment A. This summary does not include effluent manipulations and subsequent toxicity measurements.

In general, acute toxicity was tested for two test species beginning in November 2000, with chronic toxicity and acute toxicity tested for three species beginning in April 2004.

Effluent manipulations performed as part of a Toxicity Identification Evaluation (TIE) to characterize and identify, when possible, the sources of toxicity present in the Peirce Island effluent showed that the toxicity was generally nonpersistent and was reduced by aeration. Possible causes for the toxicity include oxygen-demanding substances, surfactants and ammonia. Please see the individual TIE reports for the summary of the manipulations and resulting toxicity estimates.

The acute toxicity, as measured by the 48 hour LC50 values for M. bahia ranged from 26.2% effluent to 96.7% effluent. The A-NOEC values for M. bahia ranged from 12.5% effluent to 86.6% effluent.

The 48 hour LC50 values for M. beryllina ranged from 27% effluent to 100% effluent. The A-NOEC values for M. beryllina ranged from 12.5% effluent to 86.6% effluent.

The chronic toxicity, as measured by the Survival and Growth C-NOEC values for both species ranged from 8% effluent to 50% effluent.

Fertility C-NOEC tests were performed on the A. punctulata, with values ranging from 8 to 16% effluent.

The toxicity results indicate that the whole effluent toxicity was reduced during this time period due to the plant improvements made and the subsequent improvement in effluent quality. These improvements include the following:

- New Headworks screen at the Mechanics Street Pumping Station
- New Headworks modifications to include chemically enhanced primary treatment using ferric chloride/polymer addition
- Sludge storage improvements and gravity thickener optimization
- Belt Filter press dewatering optimization
- Disinfection system improvements including new chemical storage and feed systems, mixing systems and chlorine contact tank modifications form improved contact time
- New SCADA control system for plant operations and maintenance
- Improved staff operations and maintenance skills

New NPDES Permit Requirements for WET Limits

The City of Portsmouth Peirce Island NPDES permit includes new limits for whole effluent toxicity. The limits are based on an available dilution of 43.5. Table 1 lists the new WET limits.

Table 1 – Whole Effluent Toxicity Permit Limits for the Peirce Island WWTF

Effluent Characteristics	**Discharge Limitations**	**Monitoring Requirements**	
	Maximum Daily	Measurement Frequency	Sample Type
Whole Effluent Toxicity, LC50, % Effluent	100	1/Quarter	24 Hr Comp.

EPA Region 1 policy concerning whole effluent toxicity is based on the available dilution. For the Peirce Island WWTF, the EPA is using an available dilution of 43.5. Secondary treatment facilities with a dilution between 20 and 100 must meet an acute toxicity limit of an LC50 of 100% effluent, meaning that 100% effluent cannot kill more than 50% of the test species. No chronic toxicity testing is required.

When the facility is upgraded to meet secondary treatment levels, there is a high probability that all the new WET limits in the NPDES permit will be met.

Corrective Action to Eliminate Violations

In order to eliminate the causes of whole effluent toxicity levels exceeding NPDES permit limits, the City should upgrade their wastewater treatment facility to secondary treatment. Effluent from secondary treatment will be lower in oxygen-demanding substances, lower in oil and grease, and lower in ammonia; these effluent constituents were previously identified in TIE manipulations as primary contributors to whole effluent toxicity.

The upgrade to secondary treatment will improve effluent quality and reduce effluent toxicity to NPDES permit requirements.

Very truly yours,

UNDERWOOD ENGINEERS, INC.

Steve Clifton

W. Steven Clifton, P.E.
Vice President

cc: Mr. John P. Bohenko, City Manager, City of Portsmouth
David S. Allen, P.E., Deputy Director of Public Works, City of Portsmouth
Peter H. Rice, P.E., City Water and Sewer Engineer
John D. Cooney, Ph.D., New England Bioassay, Inc.

ATTACHMENT A

SUMMARY OF HISTORICAL WHOLE EFFLUENT TOXICITY TESTING

ATTACHMENT A

HISTORICAL WET TESTING SUMMARY

10/29/2007

DATE	TEST SPECIES		48 hr LC50		A-NOEC		SURVIVAL		GROWTH		Fertility	
							C-NOEC		C-NOEC		C-NOEC	
11/1/2000	M.bahia		86.6	%	75	%						
	M. beryllina		50	%	25	%						
2/1/2001	M. beryllina		27	%	12.5	%	25	%	12.5	%		
3/1/2001	M. beryllina		39.2	%	25	%	25	%	25	%		
2/1/2002	M. bahia		38.3	%	25	%						
	M. beryllina		39.5	%	25	%						
5/23/2002	M. bahia		37.6	%	25	%						
	M. beryllina		56	%	50	%						
2/26/2002	M. bahia		38.3	%	25	%						
	M. beryllina		39.5	%	25	%						
8/27/2002	M. bahia		26.2	%	12.5	%						
	M. beryllina		32.8	%	25	%						
1/28/2003	M. bahia		38.3	%	25	%						
	M. beryllina		35.4	%	25	%						
4/4/2004	M. bahia	>	32	%	32	%						
	M. beryllina	>	32	%	32	%	32	%	32	%		
	A. punctuata		12.4	%			8	%			8	%
5/2/2004	M. bahia	>	32	%								
	M. beryllina	>	32	%			32	%	32	%		
	A. punctuata										8	%
6/6/2004	M. bahia	>	50	%								
	M. beryllina	>	50	%			32	%	32	%		
	A. punctuata										8	%
7/25/2004	M. bahia		44.5	%								
	M. beryllina	>	50	%								
	A. punctuata						16	%	16	%		
9/26/2004	M. bahia		96.7	%								
	M. beryllina	>	100	%			50	%	50	%		
	A. punctuata										16	%

ATTACHMENT A

HISTORICAL WET TESTING SUMMARY

10/29/2007

DATE	TEST SPECIES	48 hr LC50	A-NOEC	C-NOEC	C-NOEC	FC-NOEC
11/1/2000	M.bahia	86.6	75			
2/1/2002	M. bahia	38.3	25			
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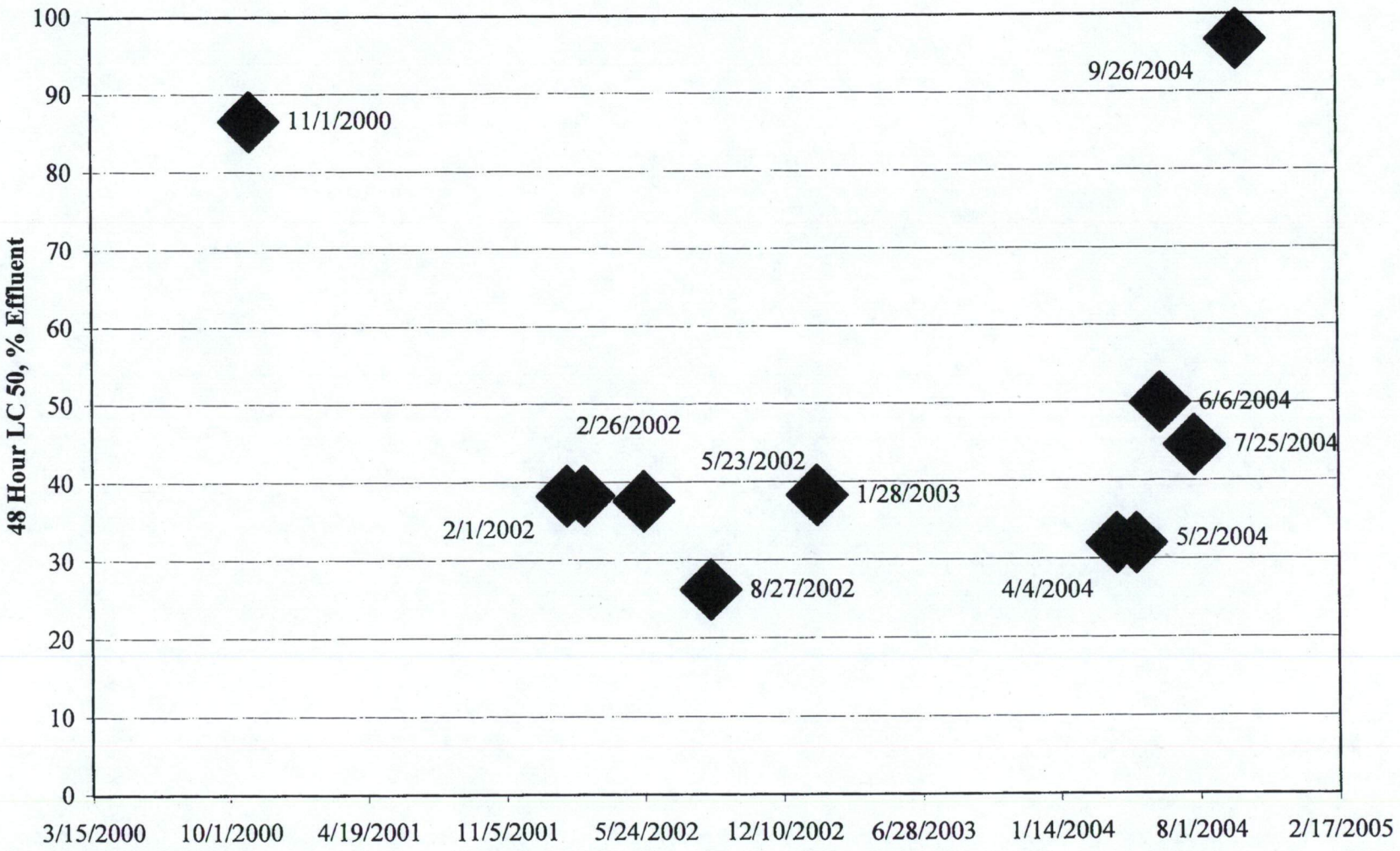
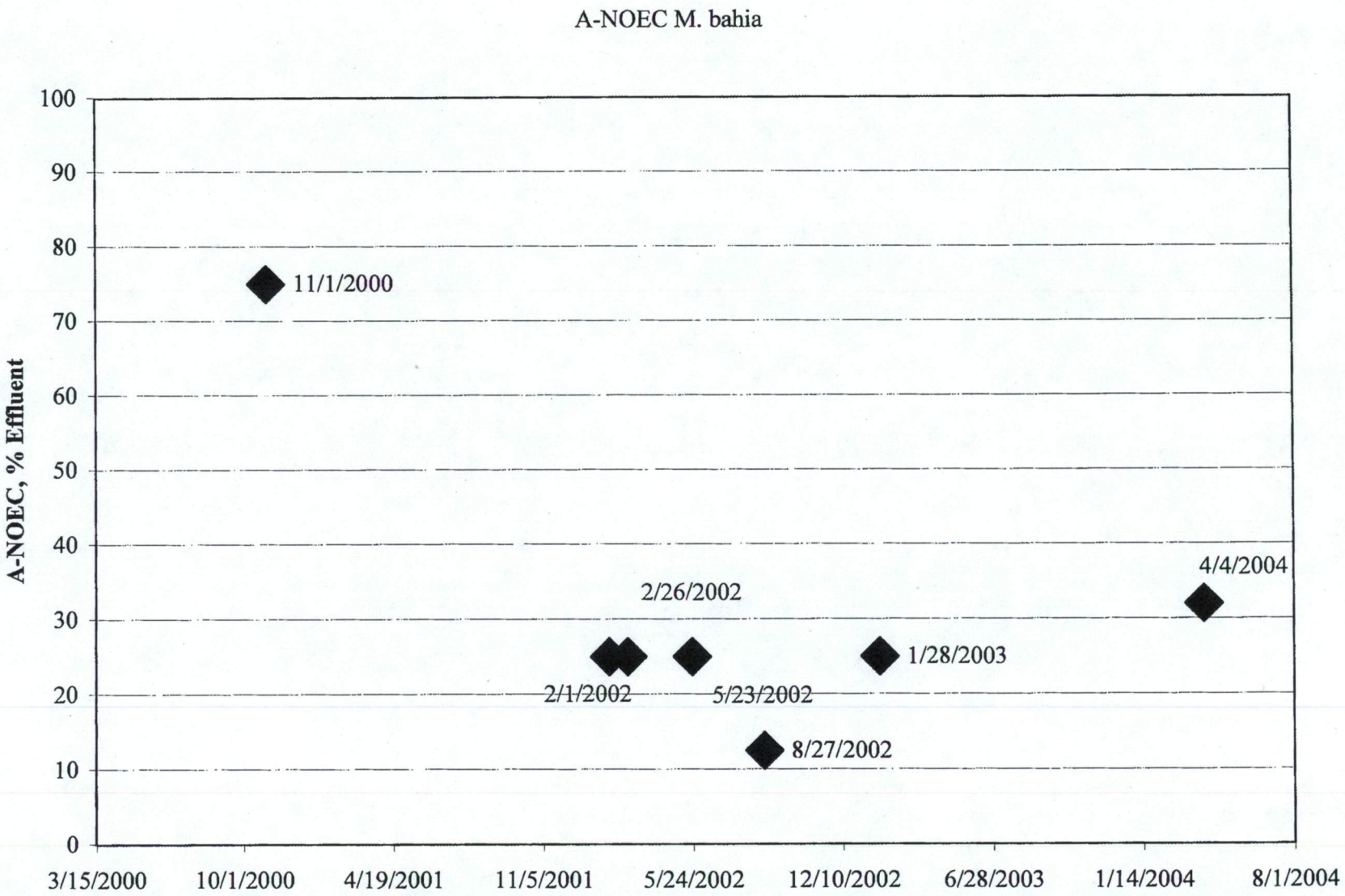
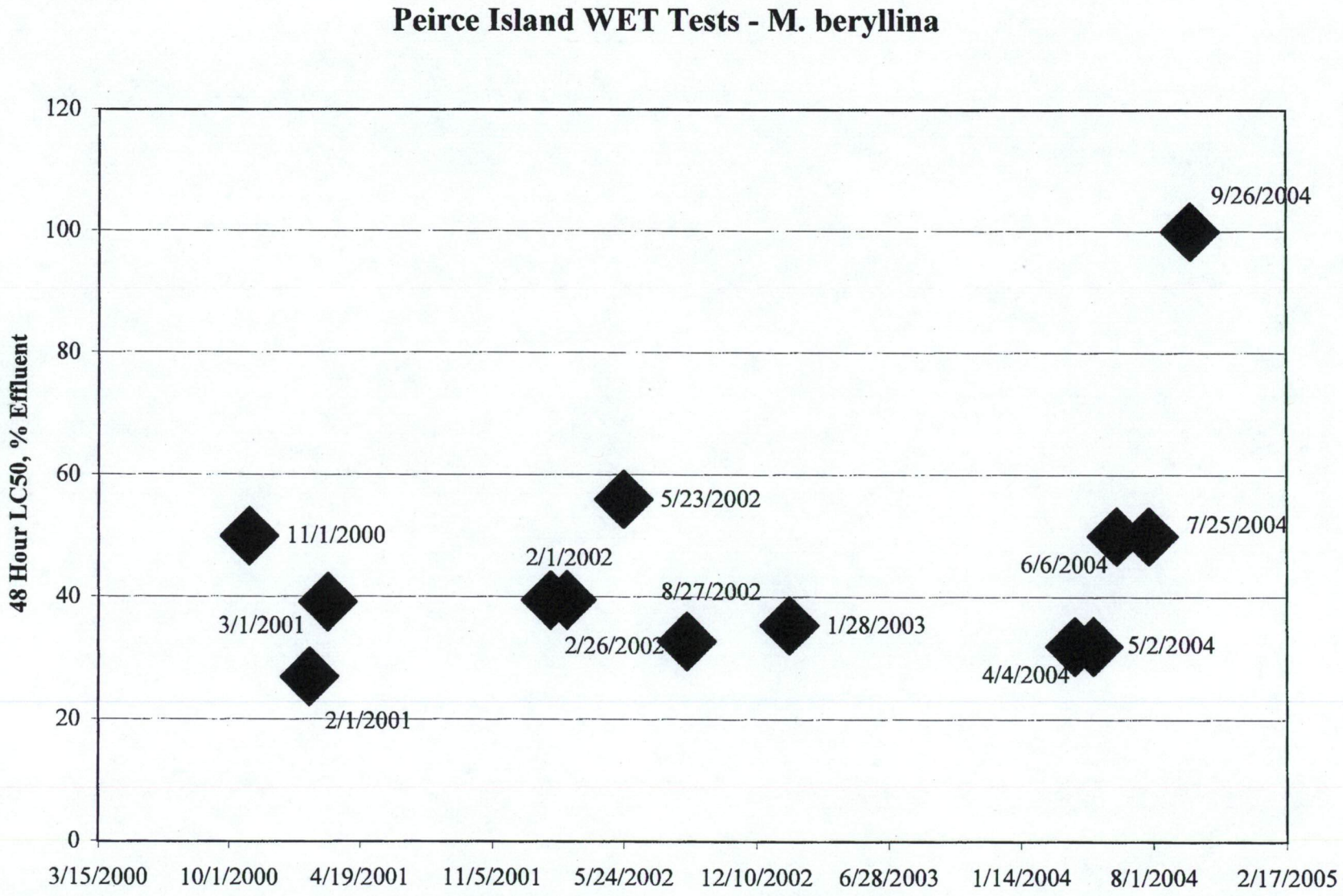
4/4/2004	M. bahia	32	32			
5/2/2004	M. bahia	32				
6/6/2004	M. bahia	50				
7/25/2004	M. bahia	44.5				
9/26/2004	M. bahia	96.7				
11/1/2000	M. beryllina	50	25			
2/1/2001	M. beryllina	27	12.5	25	12.5	
3/1/2001	M. beryllina	39.2	25	25	25	
2/1/2002	M. beryllina	39.5	25			
5/23/2002	M. beryllina	56	50			
2/26/2002	M. beryllina	39.5	25			
8/27/2002	M. beryllina	32.8	25			
1/28/2003	M. beryllina	35.4	25			
4/4/2004	M. beryllina	32	32	32	32	
5/2/2004	M. beryllina	32		32	32	
6/6/2004	M. beryllina	50		32	32	
7/25/2004	M. beryllina	50				
9/26/2004	M. beryllina	100		50	50	

4/4/2004	A. punctuata	12.4		8		8
5/2/2004	A. punctuata					8
6/6/2004	A. punctuata					8
7/25/2004	A. punctuata			16	16	
9/26/2004	A. punctuata					16

Peirce Island Acute Toxicity Tests for M. bahia




A-NOEC M. bahia
A-NOEC, % Effluent
100
90
80
70
60
50
40
30
20
10
0
11/1/2000
2/26/2002
4/4/2004
1/28/2003
2/1/2002
5/23/2002
8/27/2002
3/15/2000
10/1/2000
4/19/2001
11/5/2001
5/24/2002
12/10/2002
6/28/2003
1/14/2004
8/1/2004


Peirce Island WET Tests - M. beryllina
48 Hour LC50, % Effluent
120
100
80
60
40
20
0
3/15/2000
10/1/2000
4/19/2001
11/5/2001
5/24/2002
12/10/2002
6/28/2003
1/14/2004
8/1/2004
2/17/2005
9/26/2004
5/23/2002
11/1/2000
7/25/2004
2/1/2002
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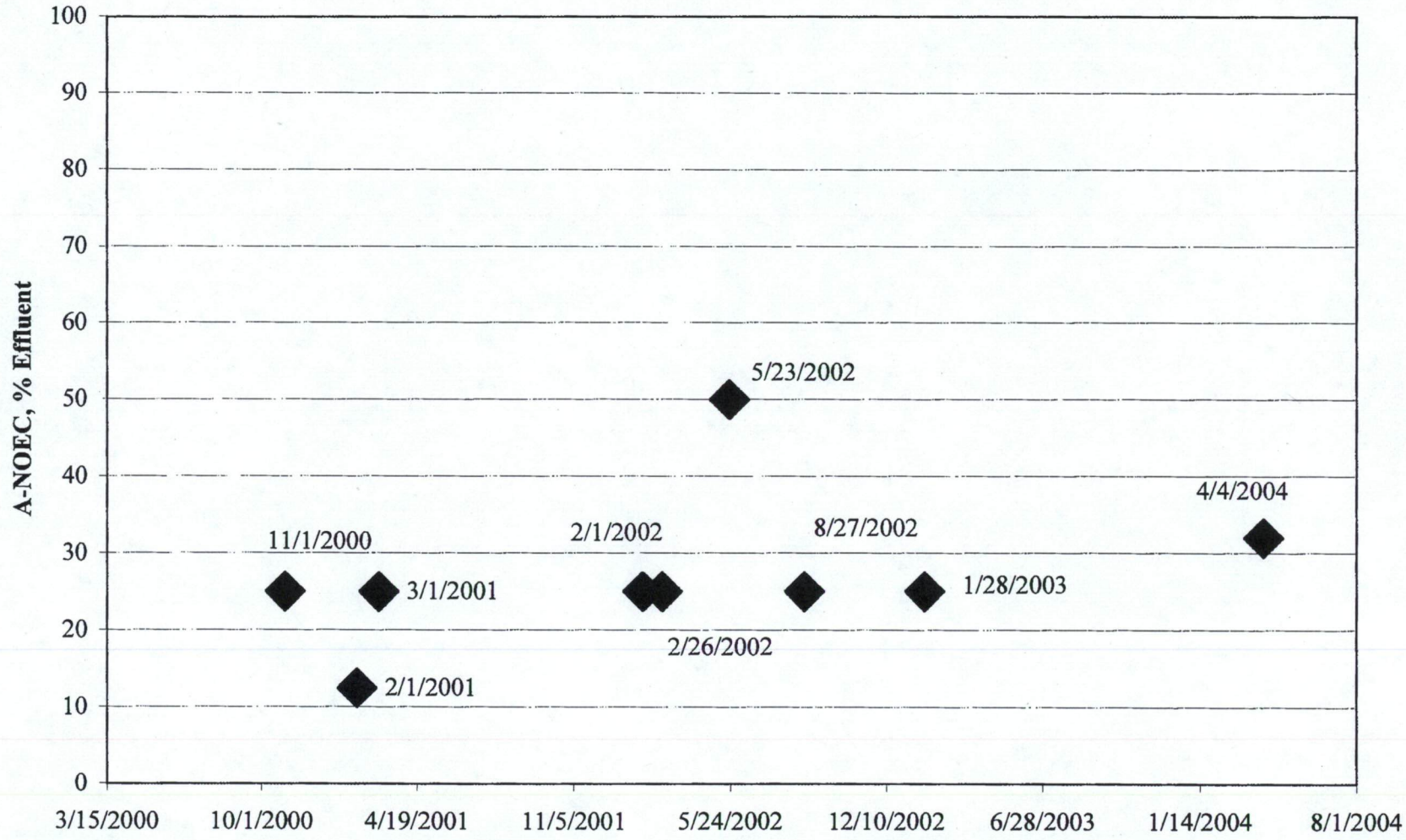
3/1/2001
1/28/2003
2/26/2002
5/2/2004
4/4/2004
2/1/2001


A-NOEC M. beryllina
A-NOEC, % Effluent
100
90
80
70
60
50
40
30
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10
0
3/15/2000
10/1/2000
4/19/2001
11/5/2001
5/24/2002
12/10/2002
6/28/2003
1/14/2004
8/1/2004
11/1/2000
3/1/2001
2/1/2001
2/1/2002
2/26/2002
5/23/2002
8/27/2002
1/28/2003
4/4/2004

"Allenwood, Mark"
<allenwom@wseinc.com>
09/26/2007 08:42 AM

To Joy Hilton/R1/USEPA/US@EPA
cc
bcc
Subject Portsmouth Meeting

Joy,

Thanks again for coordinating the meeting with Portsmouth.

Attached is the proposed agenda for the meeting.

Attending on our end will be:

myself,
Steve Freedman, Brown and Caldwell (our teaming partner on the project)
Steve Clifton, Underwood Engineers
Peter Rice, City of Portsmouth
Dave Allen, City of Portsmouth

Frank Underwood may also attend, but is not confirmed at this time.

I met with Peter Rice yesterday and obtained approval of the attached agenda. However, Peter questioned whether Michael Wagner would need to attend. If so, Peter will have one of the City's attorneys attend as well. Please let me know if we need to have the attorneys present.

Thanks,

Mark K. Allenwood, P.E.

Weston & Sampson

195 Hanover Street, Suite 28

Portsmouth, NH 03801

Tel: 603.431.3937

Fax: 603.433.4358

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Regulatory Meeting 1.doc

AGENDA
REGULATORY MEETING NO. 1
WASTEWATER MASTER PLAN
CITY OF PORTSMOUTH, NEW HAMPSHIRE

---

1. **Introduction and Purpose**

2. **WWTF Facilities Plan Issues:**
   - Permitting for new WWTF site(s)
   - Outfall permitting
   - Receiving water modeling/TMDL requirements
   - Anti-degradation
   - Possible future, more stringent effluent limitations (i.e., total nitrogen)
   - Requirements for flow shedding between WWTF sites

3. **CSO Long-Term Control Plan (LTCP) Issues:**
   - Continuation of the implementation of the 2005 LTCP Update
   - Pollutants of concern (i.e., floatables, suspended solids, BOD, bacteria, nutrients, etc.)
   - Control levels for treated CSO discharges (i.e., Presumptive or Demonstrative Approach per the1994 EPA CSO Control Policy)
   - Treatment levels for satellite CSO treatment
   - Measurement of compliance

4. **Joint WWTF Facilities Plan/CSO LTCP Issues:**
   - CSO levels for bypassed flow at a WWTF (i.e., will primary-bypassed CSO discharges be allowed per the the1994 EPA CSO Control Policy?)
   - Will blending be required for bypassed flow at a WWTF?

Weston & Sampson Engineers, Inc.
195 Hanover Street, Suite 28
Portsmouth, New Hampshire 03801
www.westonandsampson.com
Tel: (603) 431-3937 Fax: (603) 433-4358

Innovative Solutions since 1899

LETTER OF TRANSMITTAL

TO:

U.S. Environmental Protection Agency
Region 1
One Congress Street, Suite 1100 (SEW)
Boston, MA 02114-2023

DATE	JOB NO.
October 18, 2007	2070308.B
ATTENTION: Joy Hilton	
RE: Portsmouth, NH WMP	

WE ARE SENDING YOU:

☐ Shop Drawings ☐ Attached ☐ Plans ☐ Samples
☐ Change Order ☐ Prints ☐ Copy of Letter ☐ Specifications
☐ Other: ☐ Under separate cover via:

COPIES	DATE	NO.	DESCRIPTION
1	October 18, 2007	1	Technical Memorandum No. 1
1	October 18, 2007	2	Technical Memorandum No. 2

THESE ARE TRANSMITTED AS CHECKED BELOW:

☐ For approval ☐ Approved as submitted ☐ Resubmit copies for approval
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☐ For review and comment ☐ As requested ☐ Return corrected prints
☐ FOR BIDS DUE ☐ Prints returned after loan to us ☐ Returned for corrections
☐ Other

REMARKS:

Joy, Enclosed are one copy each of TMs 1 and 2. These are submitted in accordance with NPDES Permit No NH0100234, Administrative Order Docket No. 07-016.

COPY TO: City of Portsmouth SIGNED: Mark Allen

If enclosures are not as noted, kindly notify us at once.

City of Portsmouth, New Hampshire

Wastewater Master Plan

Technical Memorandum

TM 1

DEFINE STUDY PARAMETERS AND DEVELOP PROJECT BOUNDARIES

Tasks:	1.1 through 1.4	
Status:	~~First Draft~~ ~~Second Draft Final~~ **Submitted to EPA and NHDES**	10/18/07

Introduction and Purpose

This Technical Memorandum (TM) was prepared to satisfy the requirements of Task 1 as set forth in the Work Plan for the City of Portsmouth, New Hampshire Wastewater Master Plan (WMP). This TM reviews the study parameters and project boundaries to be utilized in development of the WMP. Each task associated with Task 1 of the Work Plan is addressed below.

1.1. Define WMP parameters.

The Study Area has been divided into several categories, and entities associated with each category have been identified as shown in Figure 1 and summarized as follows:

Sanitary Sewer Service

Surrounding entities, which may require sanitary sewer service, have been identified as follows:

- Newcastle
- Greenland
- Rye
- Pease Development Authority
- North Hampton
- Stratham
- Newington

Only a small portion of Greenland is currently served and this by an agreement with the property owner in Greenland and not via an inter-municipal agreement between Greenland and Portsmouth.

Rye has an inter-municipal agreement with Portsmouth for sewer service.

Based on past studies, the Route 1 corridor in North Hampton may require sewering to the Hampton border at some time in the future.

Biosolids Handling
Entities which may desire Portsmouth to provide biosolids handling have been identified as all 44 communities in the Seacoast Regional Wastewater Management Study, as well as select wastewater treatment facilities in Maine, including Kittery, York and South Berwick.

Fats, Oils and Grease
Entities which may desire Portsmouth to provide fats, oils and grease (FOG) treatment have also been identified as all 44 communities in the Seacoast Regional Wastewater Management Study.

DES funding opportunities for brown grease treatment facilities have been developed. The program provides a maximum of 50% grant funds for the construction of brown grease treatment systems based on the following scale:

- A 10% grant for the host community handling its own brown grease.
- A 2% grant for each additional community contracted by the host community.

Portsmouth currently is eligible for a base 30% grant for wastewater related facilities. Therefore, with five additional communities identified, Portsmouth could reach the 50% grant maximum (30% base + 10% host + 2%x5).

Septage
Entities which may desire Portsmouth to provide septage treatment have also been identified as all 44 communities in the Seacoast Regional Wastewater Management Study. As with brown grease, DES also offers up to 50% funding for septage related facilities, based on the same formula as brown grease treatment. Therefore, with five additional communities contracted, Portsmouth would maximize the 50% grant.

1.1.1. Identify alternative wastewater treatment facility (WWTF) sites.

Buildable areas and potential sites for a new WWTF have been identified. Assuming a minimum lot size of 10 acres will be required for a new WWTF, Figure 2, attached, illustrates buildable areas within the City.

Figure 2 was developed from available Geographic Information System (GIS) overlays. This figure is based on parcels, which are 10 acres or larger of buildable land, or when combined when other adjacent parcels, have 10 acres or more of buildable land. The remaining buildable lots will be evaluated. Non-buildable areas are those that include one or more of the following:

- Wetlands
- Conservation land
- Parks
- Cemeteries
- 50' setback from open water
- Archaeological sites, and
- Protected wildlife area

Figure 2 shows potential WWTF candidate sites A through F. Candidate sites will be identified based on a review and of the following criteria:

- Candidate sites are undeveloped, under developed, or have potential for redevelopment.
- Size of individual lots or contiguous undeveloped lots are 10 acres or greater in size.
- The candidate site has no historic significance.
- Candidate site is owned by the City, or the City may have the ability to acquire the parcel(s).
- Economic impacts may be minimal to the surrounding area.
- Zoning would allow construction of a WWTF.
- Neighborhood impacts / aesthetics are not a significant concern.
- The candidate site is within a reasonable distance from an existing outfall location (Pease or Peirce Island)
- Transportation access to the candidate site is primarily via roadways which currently handle truck traffic
- Odor control needs would be minimal based on proximity to residential areas.

Matrices to refine the selection of potential candidate sites will be developed under future tasks of this WMP.

1.1.2. Identify regional communities that may be included in the Study Area.

Those regional entities that will be included in the study area have been presented in Section 1.1.1, above.

1.2. Define planning horizons for the WMP.

Planning horizons have been identified as 20 years for the WWTF and 50 years for the collection system infrastructure. Additionally, the WWTF site will be evaluated for sustaining flow based expansions for 50 years.

Growth and build-out scenarios for current baseline conditions, 20-year forecasts, 50-year forecast and build-out conditions will be developed as part of the Flow and Load Forecasting effort under Task 3 of the WMP.

Build–out scenarios will be adhered to, and if the 50-year growth projection is greater than the build-out projection, than the build-out projection will be utilized for 50-year considerations.

1.3. Define sustainability goals.

Sustainability requirements for the project will be as follows:

- Systems must be expandable as set forth in the planning horizons.
- LEED goals will be used for office areas.
- For operational areas, LEED goals will be considered, but "functionality and durability" must take precedence.
- Systems will be designed to allow reuse and recycling.
- The overall carbon footprint will be considered
- Costs to achieve sustainability must be acknowledged and the design basis must be validated.
- The utilization of electrical load shedding, utilizing waste heat, water reuse and other sustainable approaches will be evaluated, where appropriate.

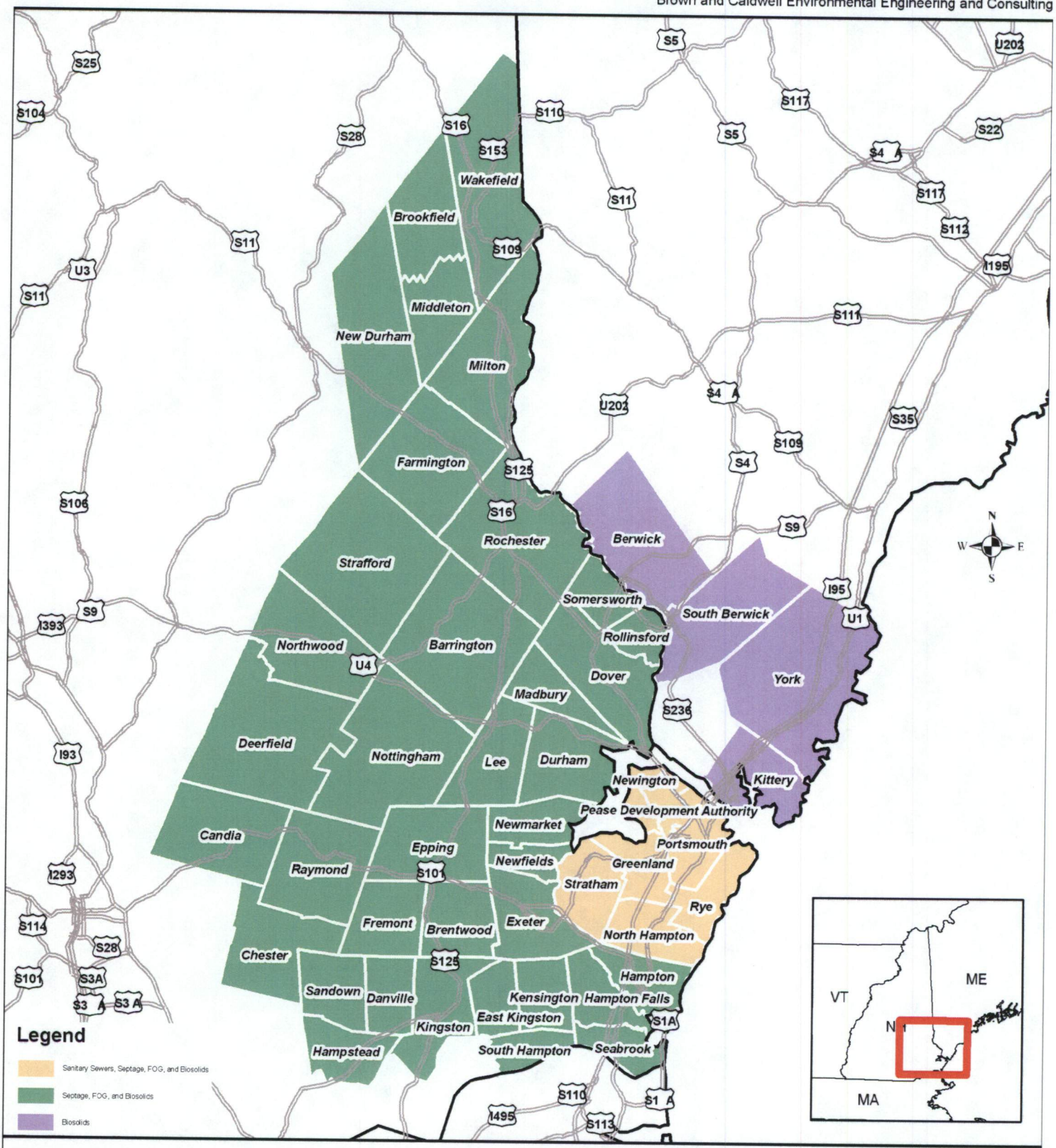

Figure 1. Potential Services to Communities

City of Portsmouth, NH
Wastewater Master Plan

BROWN AND CALDWELL

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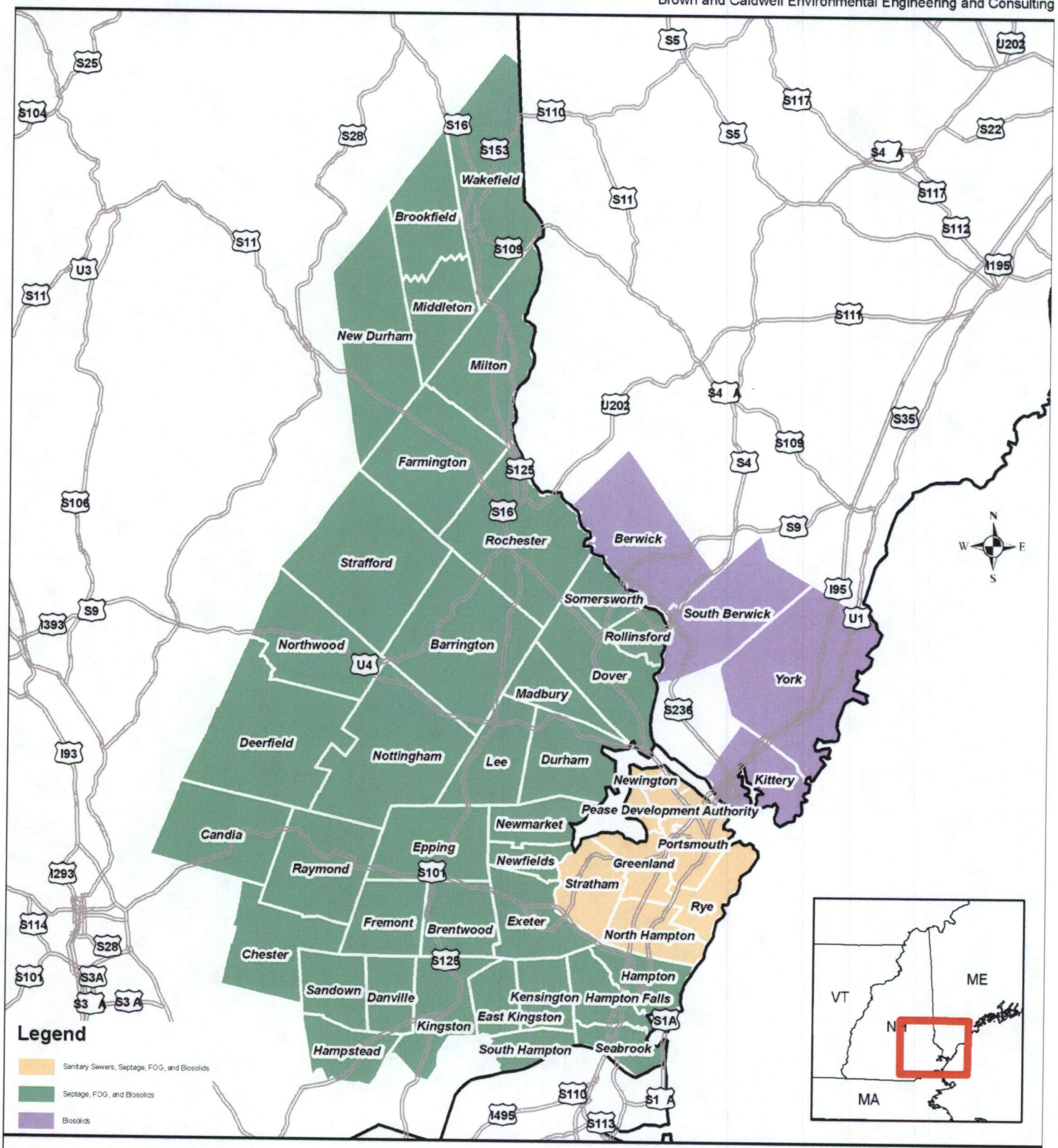

Figure 1. Potential Services to Communities

City of Portsmouth, NH
Wastewater Master Plan

7.5 3.75 0 7.5 15 22.5 Miles

BROWN AND CALDWELL

Weston&Sampson

City of Portsmouth, New Hampshire

Wastewater Master Plan

Technical Memorandum

TM 2

REGULATORY REQUIREMENTS REVIEW

Tasks:	2.1 through 2.3	
Status:	~~First Draft~~ ~~Second Draft Final~~ **Submitted to EPA and NHDES**	10/18/07

1. Introduction and Purpose

This Technical Memorandum (TM) was prepared to satisfy the requirements of Task 2 as set forth in the Work Plan for the City of Portsmouth, New Hampshire Wastewater Master Plan (WMP). The TM reviews the regulatory framework associated with Wastewater Facilities Plans (WWFPs) and Combined Sewer Overflow (CSO) Long Term Control Plans (LTCP) and, more specifically, enforcement orders and discharge permits issued to the City of Portsmouth pertaining to the its wastewater collection and treatment system. Components of both WWFPs and LTCPs will be included in the WMP in response to the City's loss of the 301(h) waiver for the advanced-primary Peirce Island Wastewater Treatment Facility (WWTF).

2. Review of Pertinent EPA Documents

Pertinent U.S. Environmental Protection Agency (EPA) and U.S. Department of Justice documents are listed below:

a. EPA National Pollutant Discharge Elimination System (NPDES) Permit No. NH0100234 for the Peirce Island WWTF
   - January 1985 (*Expired*)
   - April 2007 (*Active*)

b. EPA NPDES Permit No. NH0090000 for the Pease WWTF
   - August 2000 (*Active*)

c. U.S. Department of Justice Consent Decree, Civil No. 89-234-S signed November 1990.

d. EPA Administrative Orders:
   - Docket 02-15 in July 2002 (*Expired*)
   - Docket No. 07-016, signed August 2007 (*Active*)

The State of New Hampshire Department of Environmental Services (NHDES), either directly or indirectly, is a party to these documents with respect to review and/or compliance responsibilities.

NPDES permits regulate the volume and effluent quality of the wastewater discharges from the City's WWTFs and CSOs and establish monitoring and reporting requirements. The permit limits for the City's two WWTFs are summarized in Table 1.

In 1990, the City and EPA entered into a Consent Decree to bring the Peirce Island WWTF into compliance with the requirements of the January 1985 NPDES Permit by February 1992, and to complete what will be referred to as the City's CSO Abatement Program by January 1991. The City met these conditions.

The July 2002 Administrative Order (AO) was issued following a series of negotiations between the City, EPA and NHDES in the intervening period following completion of the CSO Abatement Program, submitted in 1991 but never approved, and the construction, start-up and operation of the upgraded advanced-primary Peirce Island WWTF. The AO included the following additional requirements: an update of the 1991 CSO Abatement Program to be submitted by August 2002; development of a Preliminary Design Report for mitigation of the CSOs by February 2003; and Advertisement for Bids for Contract 1, sewer separation in the Lincoln Ave. sewer shed tributary to CSOs 010A and 010B by March 2003. The City met these requirements.

Although currently an advanced-primary WWTF, the newly issued 2007 permit requires these secondary treatment limits for the Peirce Island WWTF along with a geometric-mean fecal coliform limit of 14/100 ml.

The August 2007 AO was issued following issuance of the April 2007 NPDES Permit. Because the advanced-primary Peirce Island WWTF was unable to meet the new secondary treatment requirements, it was no longer permit-compliant. This latest AO requires the following actions: completion of Tasks 1 and 2 of the WMP Work Plan, submitted to EPA and NHDES in May 2007, by October 19, 2007; compliance with interim effluent monitoring and limitations including 150 mg/L for BOD5 and 95 mg/L for TSS; and an evaluation of the violations to the Whole Effluent Toxicity testing program. These requirements are underway including the preparation of this TM in response to the first requirement as part of the development of the WMP.

Table 1. City of Portsmouth NPDES Permits

Constituent	Peirce Island WWTF		Pease Development Authority WWTF
	A.O. August 2007	A.O. April 2007 (Active)	August 2000 (Active)
BOD_5	150 mg/L avg.monthly	30 mg/L avg-monthly 45 mg/L max-weekly 50 mg/L max-daily	30 mg/L avg-monthly 45 mg/L max-weekly 50 mg/L max-daily
TSS	95 mg/L avg. monthly	30 mg/L avg-monthly 45 mg/L max-weekly 50 mg/L max-daily	30 mg/L avg-monthly 45 mg/L max-weekly 50 mg/L max-daily
Bacteria		Fecal Coliform 14/100 ml (geometric mean)[1]	Fecal Coliform 14/100 ml (geometric mean)

[1] No more than 10% of samples may exceed 43/100 ml.

The Pease Development Authority WWTF, which serves the Pease International Tradeport, has a secondary treatment permit with TSS and BOD5 effluent limits of 30 mg/L, 45 mg/L and 50 mg/L for average-monthly, maximum- weekly and maximum-daily conditions, respectively.

3. Review of EPA and NHDES WWFP and LTCP Requirements and Guidance Documents

EPA issued guidance on Facilities Plans in 1981 during the period when their Construction Grants Program was active. The NHDES has similar guidance for facilities planning, or the so-called report phase, with both calling for a detailed review of wastewater flow and loading projections, alternative treatment processes and cost-effective analysis. In addition, EPA also published a series of companion guideline on performing Sewer System Evaluation Surveys, which focused on the identification and removal of what was determined to be cost-effective infiltration and inflow, or I/I.

The City of Portsmouth prepared its latest Facilities Plan Update in 1999. The plan addressed a number of issues associated with the performance of the advanced-primary WWTF. The plan also addressed a number of collection system problems that were later also addressed in the 2005 LTCP as will be discussed below. The City has implemented a number of the plan's recommendations including optimization of the operation of the advanced-primary WWTF.

EPA began issuing guidance documents and policies for CSO evaluations and abatement in the late 1980s culminating in the issuance of the CSO Control Policy in 1994. This document has since become formalized as a regulation. EPA has also issued a series of guidance documents dealing with such matters as LTCP development, affordably analysis and water quality standards coordination.

The CSO Control Policy contains numerous provisions addressing implementation schedules, compliance with water quality standards and minimum levels of treatment. One of the most significant provisions of the policy relates to the presumption of meeting applicable water quality standards. The policy states that the CSO community, or the permittee, if allowed by the permitting authority, could discharge untreated CSOs up to four or more times per year and still be considered to meet applicable water quality standards. A capture rate of 85 percent of the annual CSO volume is also required. EPA is the permitting authority in New Hampshire, although close cooperation exists between the EPA and the NHDES. In addition to the presumptive approach, the policy also allows for the demonstrative approach where levels of abatement are measured against costs using a "knee-of-the curve" analysis.

The 1994 CSO Control Policy recognized that not all CSO discharges can be eliminated or abated under all statistical conditions. The 1994 policy includes an expanded list of minimum controls and treatment requirements beginning with what are referred to as the nine minimum controls (NMC). The NMC are essentially best management practices, which include the following:

1. Proper operation and regular maintenance programs for the sewer system and the CSO points.
2. Maximum use of the collection system for storage.
3. Review and modification of pretreatment programs to assure CSO impacts are minimized.
4. Maximization of flow to the POTW for treatment.
5. Prohibition of CSO discharges during dry-weather.
6. Control of solid and floatable materials in CSO discharges.
7. Pollution prevention programs that focus on containment reduction activities.
8. Public notification to ensure that the public receives adequate notification of CSO occurrences and CSO impact.
9. Monitoring to effectively characterize CSO impacts and the efficiency of CSO controls.

The minimum treatment requirements differ depending upon where the treatment occurs. Combined flows entering a Publicly Owned Treatment Works (POTW) must receive as a minimum primary treatment, and if required by the permitting authority, disinfection. According to the policy, the bypassing of excess combined flows around secondary treatment is allowable as long as it can be demonstrated that there is no feasible alternative. For satellite CSO treatment facilities, implementation of the NMC is considered the minimum technology-based treatment level. However, water quality impacts would dictate the actual level of treatment required for both bypasses at a POTW and for satellite treatment facilities out in the collection system.

Per the CSO Policy, communities were required to submit a report on compliance with the NMC to EPA by January 1997.

The NHDES has also issued CSO guidance documents but, in recent years, has deferred to the EPA policy.

The City of Portsmouth has fulfilled the requirements of the CSO Control Policy through both NMC development and compliance and the preparation of the 2005 LTCP, an update of the 1991 CSO Abatement Program. The City has been implementing the LTCP recommendations and will continue to do so concurrently with the preparation of the WMP in accordance with the current AO.

4. Initial Meeting with EPA and NHDES on Wastewater Master Plan Regulatory Requirements

A meeting was held at the offices of EPA in Boston on October 5, 2007, to review the regulatory framework for the WMP. Attendees included staff from the City of Portsmouth Public Works and Legal Department, engineering consultants, outside legal counsel, and representatives from EPA and NHDES (see attached agenda and attendance sheet). This was the first of what will likely be a series of meetings that will be held as the WMP tasks are preformed and additional regulatory interpretations and guidance become necessary. As shown on the agenda, a wide range of topics were discussed with some of the highlights summarized below:

a. CSO Issues

- The City will continue to implement the sewer separation program recommended in the 2005 LTCP, and as required in the 2007 AO. However, should the ongoing planning result in alternatives to this program based on improved efficiencies and/or downstream treatment conditions, EPA and NHDES would be consulted.
- In addition to floatables and bacteria being the pollutants of concern, the attainment of water quality standards will be a key regulatory concern for all CSO mitigation alternatives.
- Should the Peirce Island WWTF be converted to an intermittent-use, CSO-only treatment facility, a so-called satellite facility, the regulatory agencies would need to determine minimum treatment levels and effluent limitations, in light of water quality standards.
- When discussing the presumptive verses the demonstrative approaches as contained in the CSO Control Policy, EPA made it clear that with the latter, a simple "knee-of-the-curve" analysis may not be the final determinant as to the acceptable level of treatment. If it appears that a higher level of treatment can be attained for a small incremental cost, and if the overall cost of the program is affordable, a higher level of treatment could be required. Affordability, however, will be consideration for EPA when reviewing the recommendations.

b. Joint WWTF/CSO Issues

- CSO bypasses, also referred to as generic bypasses, will be allowed if there is "no feasible alternative". This would imply that the bypassing of the secondary treatment process would be allowed if it were not economically or technically feasible to add additional secondary capacity or otherwise reduce the flows to the WWTF in question. The minimum level of treatment for the bypass would be primary.
- Blending was discussed in the context of the approval of a bypass around the proposed secondary treatment process of a new or upgraded WWTF. NHDES has

historically required the two effluents to be combined and ultimately meet the permitted secondary effluent limitations of the WWTF as are the cases for Nashua and Manchester and possibly others. However, EPA has allowed separate effluent limitations for a number of CSO bypasses in Maine including Portland, South Portland, Bath, Augusta, Rockland, and possibly others as well. This issue as to whether blending would be required for a joint wastewater/CSO treatment facility for Portsmouth needs further discussion with NHDES as the planning continues.

c. WWTF Issues

- General permitting requirement were discussed for a new WWTF site and centered on rules for wetland and shoreline protection, historic perseveration and others as may be applicable.
- The issue of a new outfall, as well as continued use of the Peirce Island outfall, was also discussed in terms of the methodologies for determining dilution factors. The EPA and NHDES utilize different methodologies for modeling and interpreting rates of dilution.
- One of the most complex problems that the City will need to address with a new upstream WWTF site is "antidegradation". According to both EPA and NHDES, the interpretation of what constitutes antidegradation has not always been clear and acceptable to all involved parties.
- Effluent limitations for total nitrogen will be the other key issue that will affect the planning for and subsequent design of the secondary WWTF or WWTFs for Portsmouth. Because there has not been a formal Total Maximum Daily Load (TMDL) study conducted for the Piscataqua River Watershed, there is limited science-based information that can be used to regulate nitrogen loadings from the various WWTFs in both New Hampshire and Maine. There was discussion as to whether the EPA could apply a nitrogen limit for Portsmouth, and others, which might be based on factors: such as technology-based nitrogen removal levels; the limited water quality work performed in the watershed; and data from studies, including TMDLs, which were performed in Chesapeake Bay, Long Island Sound, Narragansett Bay and elsewhere. The issue also arose as to how to equate a narrative limit on nitrogen to an actual numerical effluent limitation.

No date was set for the next meeting although discussions will continue as the WMP progresses.

ATTACHMENTS

1. Agenda for October 5, 2007 Regulatory Meeting
2. Attendance Sheet for October 5, 2007 Regulatory Meeting

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AGENDA
REGULATORY MEETING NO. 1
WASTEWATER MASTER PLAN
CITY OF PORTSMOUTH, NEW HAMPSHIRE

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1. Introduction and Purpose

2. WWTF Facilities Plan Issues:

- Permitting for new WWTF site(s)
- Outfall permitting
- Receiving water modeling/TMDL requirements
- Anti-degradation
- Possible future, more stringent effluent limitations (i.e., total nitrogen)
- Requirements for flow shedding between WWTF sites

3. CSO Long-Term Control Plan (LTCP) Issues:

- Continuation of the implementation of the 2005 LTCP Update
- Pollutants of concern (i.e., floatables, suspended solids, BOD, bacteria, nutrients, etc.)
- Control levels for treated CSO discharges (i.e., Presumptive or Demonstrative Approach per the1994 EPA CSO Control Policy)
- Treatment levels for satellite CSO treatment
- Measurement of compliance

4. Joint WWTF Facilities Plan/CSO LTCP Issues:

- CSO levels for bypassed flow at a WWTF (i.e., will primary-bypassed CSO discharges be allowed per the the1994 EPA CSO Control Policy?)
- Will blending be required for bypassed flow at a WWTF?

PORTSMOUTH, NH
10/5/07 MEETING

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